SMBC Group
TCFD Report 2022

SMBC Group's Climate Change Initiatives

August 2022

TCFD | Task Force on Climate-related Financial Disclosures

Group CEO Message

SMBC Group, as a responsible financial institution, will support our customers' transition and efforts to develop new technologies, to maximize our contributions in realizing a decarbonized society.

This summer, Tokyo experienced the shortest rainy season, while the number of days on which the temperature went up to 35℃ or greater reached the highest on record. Not only did countries around the world face similar extreme summer temperatures, but we also saw repeated cases of drought and mountain fire.

I am deeply concerned that such extreme weather conditions previously described as "the first time in history" or "once in a century" are becoming the new norm. Putting a stop to global warming and ensuring that this green earth is passed on to future generations are both urgent issues SMBC Group is facing, given our social responsibility, and a long-term obligation of humanity that must be fulfilled.

SMBC Group is positioning climate change and other sustainability related initiatives as key issues in our management strategy, and the Group is united to realize a smooth transition to a decarbonized society.

In FY2021, SMBC Group committed to realize net zero emissions in our own operations by 2030 and in our overall loan and investment portfolio by 2050. In FY2022, we have further enhanced our efforts addressing climate change issues, including, but are not limited to, the setting of medium-term Greenhouse Gas (GHG) emissions reduction targets for the power, oil and gas (O&G) and coal sectors, and establishing the "Net Zero Transition Plan."

Moreover, we have been focusing on strengthening our sustainability management structure. In FY2021, we established the Group CSuO position in our CxO system and the Sustainability Committee as an internal committee of the Board, allowing us to enhance both our execution and supervision structure. In FY2022, in order to provide comprehensive solutions for customers from strategic planning related to sustainability, we brought together our various sustainability related capabilities that were spread throughout SMBC Group and established the Sustainability Division, which is staffed by more than 100 employees.

However, the path to carbon neutrality is not a simple way forward. The development of next generation technology is essential to ensuring an orderly transition, and we must pay careful attention to each country's unique circumstances while engaging in close communication with our customers to establish a realistic route and pace towards 2050. As a responsible financial institution, SMBC Group will maximize our contributions to maintaining stable energy supply and realizing long-term decarbonization, by supporting our customers' transition and efforts to develop new technologies.

Furthermore, climate change is one of the numerous paradigm shifts the world is facing, which brings significant opportunities on the other hand. SMBC Group established a KPI of executing sustainable finance totaling JPY 30 trillion in the 10-year period up to 2030, and in FY2021, we executed sustainable finance totaling JPY 5.4 trillion by consistently capturing opportunities brought about by the market's growth.

We are also focusing on creating new businesses by collaborating with players from outside the financial sector. For example, we have realized the launch of Sustana, a service that allows for the visualization of GHG emissions, and investing/participating in Carbonplace, a global platform for carbon credit transaction. Moving forward, we will continue providing a wide range of solutions including sustainable finance, bond underwriting, leasing, and advisory services so that we can contribute to the resolution of climate change and other social issues by supporting our customer's decarbonization efforts while also consistently enhancing our corporate value.

SMBC Group's corporate color is green. As a green corporation that is committed to contributing to the realization of a sustainable society, we will continue to engage in initiatives aimed at addressing a wide range of social issues. These initiatives will not be limited to combating climate change but will also encompass issues such as respecting human rights, preserving biodiversity, and realizing economic growth. SMBC Group will take steps forward together with our customers to realize a sustainable society.

Sumitomo Mitsui Financial Group
Director President and Group CEO

Table of Contents

1. Our Approach against Climate Change

(1) Our approach against climate change

Addressing climate change issues is one of the most important global concerns of the 21st century. Since the adoption of the Paris Agreement, global efforts to battle climate change are accelerating. The Japanese Government committed to transitioning to a decarbonized society by announcing a net zero emissions target for 2050 in October 2020. At the COP26 held in 2021, a formal agreement was concluded stating that efforts would be made to keep global warming from before the industrial revolution to below 1.5℃. Countries and corporations alike must further enhance their efforts to realize the 1.5℃ target, in other words a decarbonized society, due to the non-binding climate change goals agreed upon in the Paris Agreement becoming a shared, global goal.

As a result, SMBC Group (hereinafter, "SMBC Group" and the "Group" are used interchangeably) is committed to achieving net zero greenhouse gas (GHG) emissions across our overall investment and loan portfolio by 2050, as well as from our own operations by 2030. In line with this commitment, SMBC Group became a member of NZBA (Net Zero Banking Alliance) and NZAMI (Net Zero Asset Managers Initiative), international climate change initiatives for banks and asset managers, respectively. SMBC Group will accelerate efforts aimed at achieving our net zero target by supporting the activities of our customers that contribute to the transition toward and realization of a decarbonized society.

(2) Group Mission, SMBC Group Statement on Sustainability, and the Group Environmental Policy

Concerning the urgency to act on global environmental and social issues, the following statement is included in our Group Mission: "We contribute to a sustainable society by addressing environmental and social issues." This signals our commitment to making an even greater contribution to the sustainable development of the society.

We also established the SMBC Group Statement on Sustainability[1], which lays out the basic principles of how the Group will drive its efforts to actualize sustainability. Within the statement, we outline our aim to realize the SGDs and to resolve social issues. We also commit to engaging and cooperating with customers and other stakeholders to contribute to the global transformation into a better society. Moreover, the statement clarifies the Group's intention to support the spirit of the Paris Agreement and contribute to resolving environmental issues based on the understanding that innovation is essential to resolving such issues, including climate change.

Furthermore, we established the Group Environmental Policy[2] as we recognize that realizing a sustainable society is an important mission shared by all of humanity, and that we must continuously make efforts to harmonize environmental preservation and pollution control with corporate activities.

SMBC Group will proactively contribute to the realization of a sustainable society by promoting information disclosure in line with the TCFD recommendations and by complying with the Group Mission, SMBC Group Statement on Sustainability, and Group Environmental Policy.

[1] SMBC Group Website : SMBC Group Statement on Sustainability (https://www.smfg.co.jp/sustainability/group_sustainability/)
[2] SMBC Group Website : Environment (https://www.smfg.co.jp/sustainability/esg/environment/)

Figure 1-1 Group Mission, Vision, and Values

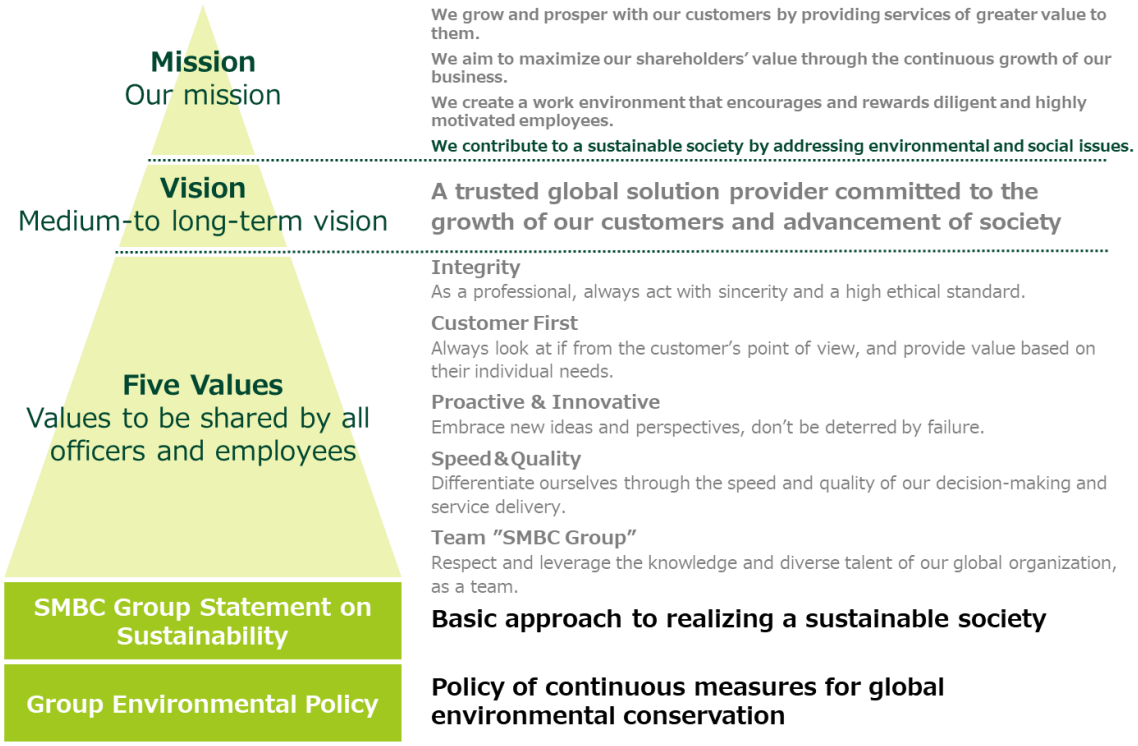


Figure1-2 SMBC Group Statement on Sustainability (abstract)

Throughout its 400-year history, the Group has continuously upheld its commitment to sustainability. We hereby declare that we will drive forward our efforts to make sustainability a reality.

- **Definition of Sustainability**
  SMBC Group defines sustainability as "creating a society in which today's generation can enjoy economic prosperity and well-being and pass it on to future generations."

- **Understanding of the Present Situation and Our Role**
  As a financial institution, we will engage and act together with customers and other stakeholders to contribute to the global transformation into a better society.

Figure 1-3 Group Environmental Policy

Group Environmental Policy

1. We provide environment-friendly financial products, information, and solutions which support our customers in their efforts to preserve the eco-system.
2. We devise means to reduce environmental risks posed by our own activities and by society.
3. We are determined to fulfill our social responsibilities through the conservation of resources and energy, and the reduction of waste.
4. We strictly comply with environment-related laws and regulations.
5. We practice the highest level of information disclosure related to the Group's environmental activities and consistently improve our efforts to contribute to environmental preservation by communicating with our staff as well as with third parties.
6. We place high priority on thoroughly educating our staff about our environmental principles to ensure that they conform to these principles in the performance of their work.
7. We actively and effectively implement "environmental management," and make continuous efforts to improve our system to deal with environmental issues by setting goals and targets for every fiscal year and reviewing them as deemed necessary.
8. These policies are disclosed on the Group's website, and the printed version is available upon request.

(3) Status of responding to TCFD recommendations

Positioning the “Environment” as a priority subject for corporate management, SMBC Group has been working earnestly to resolve environmental issues since the establishment of the Environmental Policy in 1998. In December 2017, we announced our support for recommendations set forth by the Task Force on Climate-related Financial Information Disclosures (TCFD) and are accelerating efforts against climate change issues since then. Specifically, we have established initiatives for each of the basic disclosure items proposed by the TCFD recommendations ("Governance," "Strategy," "Risk Management," and "Metrics and Targets") and are working to improve our initiatives on a regular basis. Please see below for the progress we have made in our climate change efforts, key updates to our TCFD Report, and the status of our efforts to address the TCFD recommendations.

Figure 1-4 Our history of sustainability-related measures

1998	• Established the environmental policy
2002	• Announced support for the Finance Initiative of the UN Environment Programme
2006	• Adopted the Equator Principles
2007	• Announced support for the UN Global Compact
2017	• Announced support for the TCFD recommendations
2018	• Announced policies on coal-fired power generation, palm oil planation development, and projects involving deforestation • Established the Corporate Sustainability Committee
2019	• Announced the results of scenario analysis regarding physical risks (First global financial institution in the world to disclose such assumed risk) • Signed the Principles for Responsible Banking
2020	• Announced the results of scenario analysis regarding transition risks • Revised Group Mission (Added “We contribute to a sustainable society by addressing environmental and social issues”) • Announced SMBC Group Statement on Sustainability and SMBC GroupGREEN×GLOBE 2030 • Released a statement on the “Consideration of ESG risks” (Expanded policies on individual businesses and sectors)
2021	• Released long-term action plan “Roadmap Addressing Climate Change” (Targets in “SMBC Group GREEN×GLOBE 2030” were revised upward) • Revised policies for specific businesses and sectors regarding coal-fired power generation • Newly introduced Group CSuO (Chief Sustainability Officer) position • Newly established “Sustainability Committee” as a committee inside the Board of Directors • Expressed commitment to achieve net zero GHG Emissions (by 2030 for our own operations, by 2050 for our overall investment and loan portfolio) • Joined NZBA (Net Zero Banking Alliance)
2022	• Announced medium-term portfolio GHG emission reduction targets (power, oil and gas, coal) • Joined NZAMI (Net Zero Asset Managers Initiative) • Established Net Zero Transition Plan

Figure 1-5 Major updates from TCFD Report 2021

Approach to Climate Change	• **Joined NZBA（Net Zero Banking Alliance）** Accelerated net zero initiatives
Governance	• **Organizational change** Established Sustainability Department and Environmental and Social Risk Management Department • **Revision of executive compensation system** Introduced ESG as a quantitative evaluation item for determining executive compensation
Strategy	• **Revision of our awareness of risks/opportunities** Established risks and opportunities heatmap • **Revision of credit exposure/ratio based on sector** Based on the heatmap, reorganized credit exposure and exposure ratio of sectors that have a large environmental impact • **Establishing Net Zero Transition Plan** Updated Roadmap Addressing Climate Change as Net Zero Transition Plan that includes GHG emission reduction targets, risk management, promotion of decarbonization businesses, and engagement.
Risk Management	• **Adjusting risk category-based management methodology** Clarified risk management methodology for each category (credit, market and liquidity, operational, and reputational) • **Revision of climate change scenario analysis** （Physical risks）Analysis according to scenarios listed in the IPCC Sixth Assessment Report（published August 2021） Reorganized risk volume of applicable regions (domestic, overseas (Europe, US, APAC)) （Transition risks）Added automobile and steel sectors as analysis targets • **Enhancing policies for specific businesses and sectors** Partial revision of policies regarding coal-fired power generation, palm oil plantation development, and deforestation.
Metrics and Targets	• **Establishing medium-term GHG reduction target for our investment and loan portfolio** Established emission reduction targets for power, oil and gas, and coal sectors

Figure 1-6 Status of responding to TCFD recommendations

Governance

- Established supervisory and execution framework for our climate change-related efforts

Supervision	• Supervision/Deliberation regarding sustainability initiatives at Board of Directors, Sustainability Committee, and other relevant committees.
Execution	• Group CSuO reports to the Board of Directors and Sustainability Committee • Group CRO reports to the Board of Directors and Risk Committee • Deliberations, etc. by the Management Committee, Corporate Sustainability Committee, and other relevant committees

- Introduced executive compensation framework that has ESG (including climate change) as an evaluation item
- Promotion through the establishment of the Sustainability Division and Climate Change Working Group

Strategy

- Risk awareness based on scenario analysis
- Forecast of capital investments required for decarbonization/awareness of opportunities that reflect SMBC Group's businesses areas
- Established sector-based risk and opportunity heatmap
- Established Net Zero Transition Plan

System Developments	• Enhanced employee literacy and governance regarding the progress of a transition plan
Target-Setting/ Transition Pathway	• Established reduction targets based on NZBA guidelines • Shared awareness with customers regarding the direction of emission reductions
Implementation Strategy	• Enhanced risk management (expanded the scope of scenario analysis, enhanced credit balance and individual customer credit management) • Promoted decarbonization business on a Group basis • Reduced GHG emissions resulting from our operations (accelerated transition of electric power to renewable energy sources)
Engagement Activities	• Supported customers' transition and create growth opportunities for them • Participated in the establishment of climate related initiatives and guidelines

Risk Management

- Positioned climate change risk as Top Risks, and executed scenario and sector-based risk control according to the Risk Appetite Framework
- Executed category-based risk management
- Conducted due diligence (understand and apply customers' non-financial data when determining credit and evaluate environmental and social risk for each transaction)
- Established policies for sectors that have a material impact on climate change

Metrics	Targets	Recent Results
GHG emissions in SMBC Group	**Net zero by 2030**	**176.1** ktCO2e
Portfolio GHG emissions	**Net zero by 2050**	–
Power	FY2030 **138-195**gCO2e/kWh	**332**gCO2e/kWh (FY2020)
Oil and Gas	FY2030 **-12~-29%**	**56.9** MtCO2e (FY2020)
Coal	FY2030 **-37~-60%**	**13.9** MtCO2e (FY2020)
Sustainable Finance	JPY 30 trillion by 2030	Total of JPY **8.2** trillion (FY2021)
Green Finance	JPY 20 trillion by 2030	Total of JPY **7.5** trillion (FY2021)
Loan balance for coal-fired power generation	**Net zero by FY2040** Project finance/ Facility linked corporate finance	Project finance : **JPY 260 billion** (FY2021) Facility linked corporate finance **JPY 80 billion** (FY2021)

2. Governance

(1) Overall picture of sustainability management

Sustainability management at SMBC Group is promoted under the responsibility of CxOs, including the CEO, and is supervised by the Board of Directors and operated under a robust governance system. Regarding responses to climate change, it is supervised by the Board of Directors as well as by internal committees, including the Sustainability Committee, and each committee deliberates the issue. Also, specific business strategies related to climate change are implemented based on deliberations and decisions including by the Management Committee.

Looking forward, amidst the need for further sophistication of efforts to achieve net zero emissions, we will accelerate promotion while strengthening supervisory functions regarding progress. In addition, we will strengthen internal control for disclosure of climate-related information in anticipation of the trend toward sophistication of sustainability-related disclosure standards.

Figure 2-1 Status of governance regarding responses to climate change

Committee			Reporting and discussion subjects related to climate change covered so far (examples)
Supervision	Board of Directors		• Formulation of Roadmap Addressing Climate Change • Commitment to achieving net zero emissions by 2050 • Formulation of reduction targets for portfolio GHG emissions • Formulation of transition plan • Progress of sustainability promotion measures • Establishment of a Sustainability Committee and formulation of regulations
	Internal committees	Nomination Committee	• Appointment of a Group CSuO
		Compensation Committee	• Realization of an executive compensation system that encourages further adoption of sustainability management
		Audit Committee	• Reporting on sustainability initiatives • Reporting on Sustainability Committee meetings held • Management of sustainability promotion measures and reporting on surveys about operational systems
		Risk Committee	• Current environment and risk awareness (regulatory trends related to climate change, etc.) • Climate change risk management status (strengthening portfolio management, scenario analysis results, engagement initiatives)
		Sustainability Committee	• Participation in NZBA • Necessity of engagement with customers for GHG reduction • Improvement of the internal system for GHG reduction
Execution	Management Committee		• Commitment to achieving net zero emissions by 2050 • Formulation of policies for reducing portfolio GHG emissions • Reporting on participation in TNFD • Formulation of a policy on engagement with stakeholders • Formulation of operational policies for other sustainability-related operations
	Risk Management Committee		• Implementation status of risk management measures on the Climate Change Response Roadmap • Engagement efforts related to scenario analysis • Portfolio management in the energy and power sectors, etc.
	Corporate Sustainability Committee		• Stakeholder trends • Promotion of new business related to sustainability

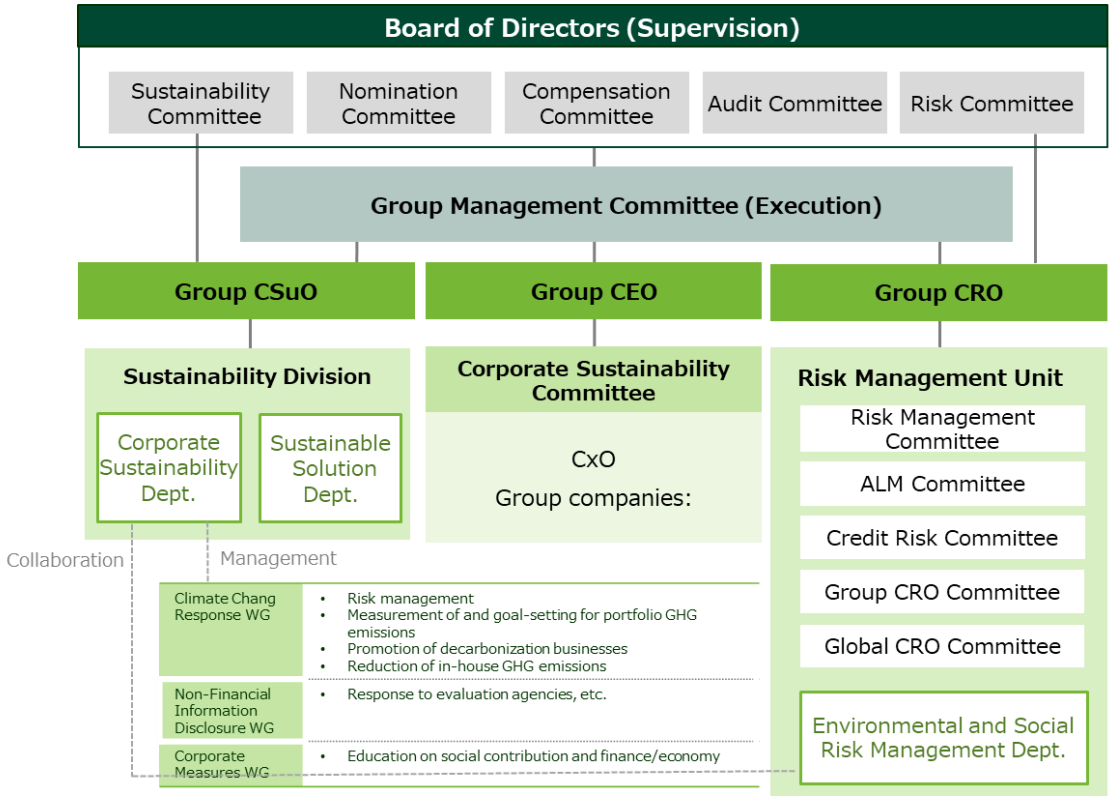
Figure 2-2 Member composition and attendance status of internal committees (FY2021 results)

Committee member		Nomination Committee Internal 1 Outside 5		Compensation Committee Internal 2 Outside 4		Audit Committee Internal 2 Outside 3		Risk Committee Internal 1 Outside 4		Sustainability Committee Internal 3 Outside 3	
Takeshi Kunibe	Chairman of the Board	●	Attended 6/6 times	●	Attended 6/6 times					●	Attended 2/2 times
Jun Ohta	President and Chief Executive Officer			●	Attended 6/6 times					●	Attended 2/2 times
Toru Nakashima	Director and Senior Managing Executive Officer							●	Attended 4/4 times		
Atsuhiko Inoue	Director					●	Attended 15/15 times				
Toru Mikami (Retired on 6/29)	Director					●	Attended 3/3 times				
Toshihiro Isshiki (Appointed on 6/29)	Director					●	Attended 12/12 times				
Masayuki Matsumoto	Outside Director	●	Attended 6/6 times			●	Attended 15/15 times				
Arthur M. Mitchell	Outside Director	●	Attended 6/6 times	●	Attended 6/6 times						
Shozo Yamazaki	Outside Director					●	Attended 15/15 times	●	Attended 4/4 times		
Masaharu Kohno	Outside Director	●	Attended 6/6 times					●	Attended 4/4 times	●	Attended 2/2 times
Yoshinobu Tsutsui	Outside Director	●	Attended 6/6 times	●	Attended 5/6 times						
Katsuyoshi Shinbo	Outside Director			●	Attended 6/6 times	●	Attended 15/15 times				
Eriko Sakurai	Outside Director	●	Attended 6/6 times	●	Attended 6/6 times					●	Attended 2/2 times
Eiichiro Adachi	JRI, Senior Counselor									●	Attended 2/2 times
Hirohide Yamaguchi* [1]	Outside expert							●	Attended 4/4 times		
Tatsuo Yamazaki* [2]	Outside expert							●	Attended 4/4 times		
Yukari Takamura* [3]	Outside expert									●	Attended 2/2 times

● : Chairman ● : Committee member

* 1 Chairman of Nikko Research Center; Former Deputy Governor of the BOJ
* 2 Specially Appointed Professor, International University of Health and Welfare
* 3 Professor, Future Vision Research Center, Tokyo University

Figure 2-3 Sustainability management structure of SMBC Group



(2) Sustainability supervision structure

① Board of Directors

The main roles of SMBC Group Board of Directors are as follows: decision-making for items that the Board of Directors should cover exclusively according to laws and regulations (for instance, basic policies for corporate management); and supervision of the execution of job duties by executive officers and directors. In addition, in principle, executive officers are entrusted with decision-making authority regarding execution of operations other than matters that should be exclusively covered by the Board of Directors, for the purpose of further strengthening the supervisory functions of the Board of Directors and speeding up business execution.

The Board of Directors is made up of diverse directors including those with expertise on sustainability. The Board of Directors conducts the final oversight on sustainability management and deliberates matters from the perspective of responding to climate-related risks and opportunities. In the FY2021 Board of Directors meetings, the Group Chief Sustainability Officer (CSuO), who oversees and promotes overall sustainability initiatives, reported on the following climate change-related matters five times in total including the formulation of the Roadmap Addressing Climate Change, confirmation of the commitment to realize net zero emissions with regard to portfolio GHG emissions by 2050, and progress of sustainability promotion measures. In the meeting for this fiscal year, the Group CSuO will report on the formulation of reduction targets for portfolio GHG emissions and transition plan.

Figure 2-4 Directors' skill matrix

	Knowledge and experience that our company expects in particular						
	Corporate management	Finance	Global	Legal / Risk management	Law/Financial accounting	IT/DX	Sustainability
Takeshi Kunibe	●	●	●	●	●	●	●
Jun Ohta	●	●	●	●	●	●	●
Makoto Takashima	●	●	●	●	●	●	●
Toru Nakashima		●		●	●	●	●
Teiko Kudo		●	●	●			●
Atsuhiko Inoue		●		●			
Toshihiro Isshiki		●		●			
Yasuyuki Kawasaki	●	●	●				
Masayuki Matsumoto	●			●			
Arthur M. Mitchell	●	●	●	●			
Shozo Yamazaki				●	●		
Masaharu Kohno			●	●			●
Yoshinobu Tsutsui	●	●					
Katsuyoshi Shinbo				●			
Eriko Sakurai	●		●				●

*The items listed in "Skills Matrix of Directors" are areas particularly expected of the relevant directors and do not represent all of the knowledge and experience possessed by the directors.

② Nomination Committee

The Nomination Committee determines the content of agenda items concerning the appointment and dismissal of Company directors to be submitted to the general meetings of shareholders. It also deliberates matters related the following: officer appointment and dismissal for the Company and its main subsidiaries; and selection of a successor for Company President of the Company, President of SMBC, and President of SMBC Nikko Securities. The Nomination Committee consists of one internal director and five outside directors; and from the perspective of ensuring the transparency of deliberations on officer appointments and dismissals, an outside director is appointed as the chairperson of the Nomination Committee.

This committee deliberates the appointment of the Group CSuO and the appointment of the Chairman and members of the Sustainability Committee.

③ Compensation Committee

The Compensation Committee formulates the policies for determining the compensation of directors, officers, and executive officers of the Company, as well as the contents of the compensation, etc. for each director and officer of the Company based on the policies. In addition, the Committee deliberates the policies for determining officer compensation etc. at major subsidiaries as well as the contents of the compensation, etc. for each executive officer, etc. of the Company. The Compensation Committee consists of two internal directors and four outside directors, and from the perspective of ensuring the transparency of deliberations on officer compensation, an outside director is appointed as the Chairperson of the Compensation Committee. The compensation system and compensation levels are determined by the Compensation Committee, of which the majority is comprised of outside directors, based on the following: results of a third-party investigation on management compensation; economic and social conditions; business environment, etc.

This committee deliberates executive compensation based on the executive compensation system, which includes both quantitative and qualitative ESG evaluation items.

④ Audit Committee

The Audit Committee audits the execution of job duties by officers and directors, prepares audit reports, appoints and dismisses the accounting auditor for submission at the general meeting of shareholders, and determines the content of agenda items regarding non-reappointment of the accounting auditor. In addition, members selected

by the Audit Committee conduct investigations, etc. on the business and assets of the Company and its subsidiaries. The Audit Committee consists of two internal directors and three outside directors. From the perspective of ensuring the objectivity of audits and independence from business execution, an outside director is appointed as the chairperson of the Audit Committee, and in principle, at least one member of the committee should be a financial expert.

So far, this committee has reported on the following: status of sustainability initiatives; implementation status of the Sustainability Committee; and investigation of the management and operation system for sustainability promotion measures.

⑤ Risk Committee

The Risk Committee, which is chaired by an outside director, deliberates the following: matters related to the management of environmental awareness and risks as well as Risk Appetite operations; matters related to the operation system for risk management; and other important matters for risk management. It also provides advice to the Board of Directors.

Regarding responses to climate change, the Sustainability Committee deliberates the formulation and progress of the overall policies. On the other hand, at Risk Committee meetings, which are held on a quarterly basis in principle, the Group Chief Risk Officer (CRO) reports and deliberates environmental awareness and risks related to climate change issues, Risk Appetite, execution status of risk management-related measures, etc., and then provides advice to the Board of Directors.

⑥ Sustainability Committee

The Sustainability Committee was newly established in July 2021 and consists of a total of six members comprising two outside directors, two internal directors, and two internal or external experts. The Sustainability Committee deliberates the following: the progress of sustainability promotion measures such as measures for climate change; domestic and international sustainability-related trends; and other important sustainability-related matters. It submits reports and advice to the Board of Directors every six months, in principle.

Regarding matters related to domestic and international situations surrounding sustainability as well as the progress of sustainability-related measures in SMBC Group, the Group CSuO reports and presents proposals for sustainability-related action policies. Directors and outside experts supervise and deliberate the contents. In the 2021 Sustainability Committee meeting, specific policies for participating in NZBA and achieving net zero emissions were deliberated.

(3) Sustainability execution structure

① Management Committee / Sustainability Promotion Committee

Efforts for climate change issues in response to the TCFD recommendations are reflected in SMBC Group's business strategy based on the decisions made by the Group Management Committee and the Sustainability Promotion Committee. Under the Board of Directors, SMBC Group places the Group Management Committee as the highest decision-making body for business execution and corporate management of the entire Group.

Measures for the realization of Group-wide sustainability, including responses to climate change, are discussed by the Group Management Committee. In addition, specific contents are deliberated and determined by the "Corporate Sustainability Committee." The Corporate Sustainability Committee, chaired by the Group CEO, was established with the aim of realizing sustainability from an execution standpoint under the commitment of the top management. Responses to climate change are also discussed in the committee.

② Group CxO

The Group CEO approves measures for realizing sustainability, including the climate change responses, at the Group Management Committee, etc.

In order to strengthen these measures, the Group CSuO was introduced from FY2021. The Group CSuO supervises and promotes the overall sustainability initiatives, including responses to climate change. The Group CSuO is responsible for the planning and progress management of sustainability-related measures. Furthermore, in order to steadily execute the responses to climate change, a cross-functional working group (WG) is established for each initiative in SMBC Group under the control of the Group CSuO.

The Group CRO is responsible for risk management from a sustainability perspective. From FY2022, the Environmental and Social Risk Management Department. was newly established in the unit to strengthen the risk management system. Under the Group CRO, it conducts scenario analyses and portfolio management.

③ Sustainability Division

In FY2022, SMBC Group established the Sustainability Division under the Group CSuO. The Sustainability Division aims to consolidate functions and knowledge related to sustainability on a Group-wide basis and strengthen our ability to respond to

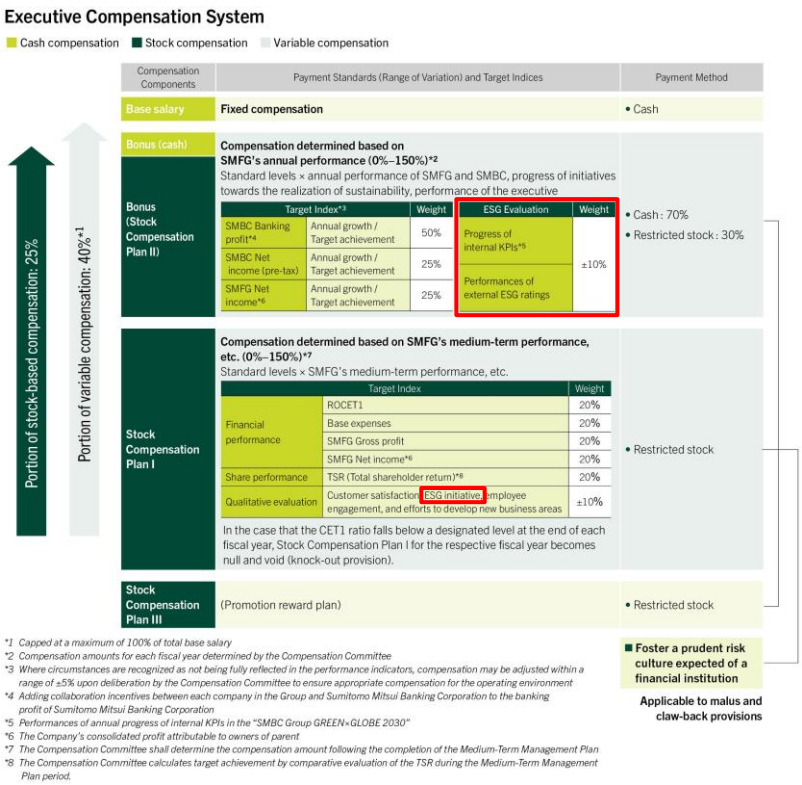
environmental and social issues while expanding available resources. It consists of the Corporate Sustainability Department, which supervises the overall Group strategies and conducts business development from a medium-term perspective, and the Sustainable Solution Department, which promotes sustainable business and engagement with customers. Under the Group CSuO, it comprehensively covers sustainability-related issues, from planning to promotion, including climate change.

(4) Executive compensation system

From FY2020, SMBC Group incorporated the factor of "ESG initiatives" as one of the qualitative items for medium-term performance-linked compensation. Through this, the degree of achievement of sustainability-related long-term targets, including responses to climate change, is reflected in the executive compensation system.

In addition, from FY2022, application of the ESG evaluation factor was expanded to single-year performance-linked compensation. Regarding ESG initiatives for a single fiscal year, the Compensation Committee, which is comprised of a majority of outside directors, determines the evaluation based on the degree of achievement of internal goals for a single fiscal year and evaluation results by major external evaluation agencies. As a result, a maximum of ±10% will be reflected in single-year performance-linked compensation.

Figure 2-5 Executive compensation system



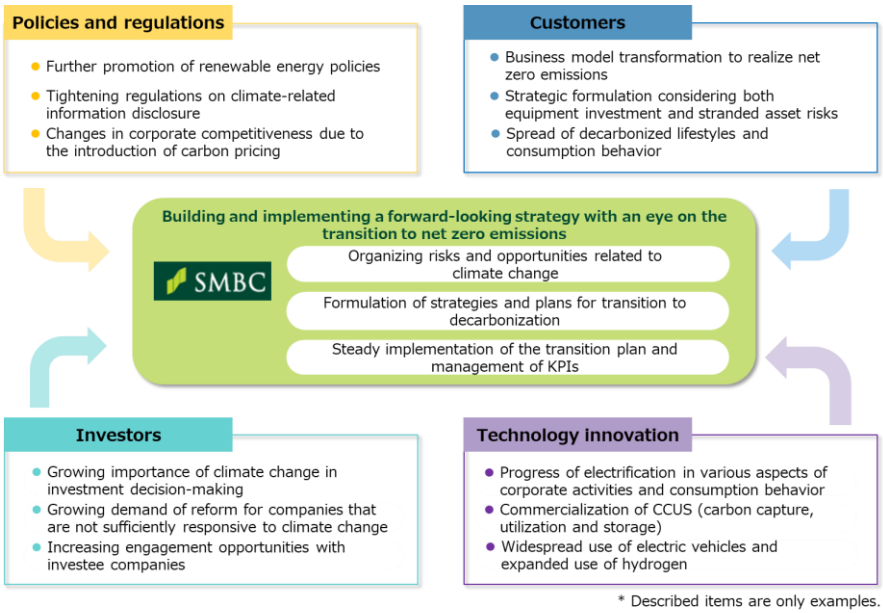
3. Strategy

As the world transitions to a net zero society, the environment surrounding SMBC Group is expected to change dramatically depending on the following: tightening of policies and regulations; changes in the behavior of stakeholders, including customers and investors; and progress in technological innovation. In such an uncertain environment, it is important to implement climate change measures step by step, while assessing external trends under a forward-looking strategy toward achieving net zero emissions by 2050.

Under these circumstances, SMBC Group has organized our world view toward decarbonization as follows. With this worldview in mind, we examine both risks and opportunities regarding how the net zero transition will affect our business. In addition, to deal with these risks and opportunities, in 2021, we formulated the "Roadmap Addressing Climate Change," a long-term action plan for climate change measures, and clarified the direction toward net zero emissions by 2050. Also, specific measures to be implemented in the short- to medium-term are positioned as action plans.

From FY2022, we updated the "Roadmap Addressing Climate Change" as a "Transition Plan" and systematized a series of targets and actions for SMBC Group to achieve net zero emissions. By implementing the strategic initiatives indicated in the Transition Plan, we will reduce climate-related risks while expanding growth opportunities arising from the transition to decarbonization and will strive to improve our enterprise value through addressing climate change.

Figure 3-1 Our worldview toward decarbonization



(1) Awareness of risks associated with climate change

SMBC Group organizes the transmission routes and events of physical risks and transition risks. We conduct scenario analysis for sectors that are expected to have large impacts, quantify financial impacts, and calculate portfolio GHG emissions. We share the risk awareness obtained through these processes within the company and reflect it in the strategies of the entire Group.

① Physical risks and transition risks

SMBC Group identifies relevant risk events based on various transmission channels, by anticipating changes in the external environment and business environment due to climate-related issues, and based thereon, identifies the financial impacts on SMBC Group. An overview of the risk events assumed by SMBC Group and our main impacts are as follows.

[Physical risks]

■ **Acute weather phenomena and chronic climate changes**

The progress of global warming may bring about an increase in acute natural disasters (such as typhoons and floods) and chronic climate changes: e.g. increased precipitation due to a rise in average temperature.

[Assumed main impacts on SMBC Group]

There is a risk that business may not be able to continue due to the damages to the head office or branches, and a risk of increased costs due to countermeasures and recovery. In addition, there is a risk that SMBC Group's credit-related costs will increase and deposits will decrease, due to deterioration in customer performance and collateral damage due to natural disasters.

[Transition risks]

■ **Tightening policies and laws and regulations, and changes in technology and markets**

The transition to a decarbonized society may be accompanied by tightening regulations in each country (stricter carbon emission targets, carbon tax rate hikes, etc.) and may promote changes in industrial structure due to introduction of new technologies and energy sources and changes in consumer preferences.

[Assumed main impacts on SMBC Group]

In line with the increase in carbon emissions control costs and changes in the supply-demand environment for products and services, some customers might face

performance deterioration due to revenue decrease and impairment of existing assets, etc.; therefore, SMBC Group may face the risk of increasing credit costs. In addition, it may be necessary to review business strategies such as sector-specific policies.

■ **Reputation concerning corporate efforts**

Companies are required to take certain measures such as reforming business models to realize a better match with a decarbonized society and controlling the amount of carbon emissions. Disclosure requests from stakeholders are also increasing, and efforts to address climate change issues are becoming one of the criteria for corporate evaluation.

[Assumed main impacts on SMBC Group]

Insufficient efforts to address climate change and delays in responding to requests for information disclosure may lead to worsening of SMBC Group's reputation and the risk of a worsening funding environment.

② Risk categories

SMBC Group organizes climate change risks by category. Climate change risks are expected to spread through a broad range of routes and could materialize on various time axes. In SMBC Group, various cases shown in the table below are expected to occur.

Figure 3-2 Risk event examples associated with climate change for each of major categories

Risk category	Definition	Event examples relating to physical risks <Timeframe>	Event examples relating to transition risks <Timeframe>
Credit risk	Risk for the Bank of incurring losses due to reduction or loss of asset value (including off-BS assets) resulting from credit events such as deterioration of financial condition of obligors	Risk of increasing credit costs for SMBC Group along with the deterioration of customer performance or impairment of collateral items due to natural disasters <Short- to long-term>	Risk of increasing credit costs for SMBC Group along with the deterioration of customer performance resulting from a decline in revenue or impairment of existing assets <Medium- to long-term>
Market risk	Risk of incurring losses due to fluctuation in the market value of financial instruments resulting from changes in interest rates, currency rates, stock prices, etc.	Risk of falling prices of our strategically held stocks and funds along with the deterioration of customer performance due to natural disasters <Short- to long-term>	Risk of falling prices of our strategically held stocks and funds along with the deterioration of customer performance resulting from a decline in revenue or impairment of existing assets <Short- to long-term>
Liquidity risk	Risk of difficulty in procuring funds necessary for settlement due to mismatch in the period between fund management and procurement or unexpected outflow of funds; risk of incurring losses due to forced procurement of funds at a significantly higher interest rate than usual	Risk of losing deposits from SMBC Group along with the deterioration of customer performance due to natural disasters <Short- to long-term>	Risk of deterioration of the funding environment and risk of a funds drain from deposits due to deterioration of the Group's reputation <Short- to long-term>
Operational risk	Risk of incurring losses resulting from improper or non-functional internal processes, people and/or systems, or from the occurrence of external events	Risk of business discontinuation due to damage to the Head Office and branch offices; risk of increasing costs due to the need for a response and recovery <Short- to long-term>	Risk of incurring losses due to fines and court proceedings relating to sales of products and services that do not meet climate change measures and green finance criteria <Short- to long-term>
Reputational risk	Risk of leading to impairment in enterprise value or a decline in customer trust due to failure in meeting expectations regarding high ethics, sincerity, etc. by stakeholders (customers, shareholders/markets, society/environment, employees, etc.), resulting from certain business operations of SMBC Group or a certain act conducted by its employee or another related person.	Risk of being criticized for a delayed response for business recovery from a damaged Head Office and/or branch offices <Short- to long-term>	Risk of deterioration in the reputation of SMBC Group due to a lack of responses to climate change and a delayed response to requests from stakeholders for information disclosure <Short- to long-term>

(Short-term: about 3 years; medium-term: about 4-10 years; long-term: over 10 years)

③ Scenario analysis on climate change

In SMBC Group, SMBC (core company of the Group) conducts scenario analysis on physical risks and transition risks and calculates the assumed risk exposure. Note that this scenario analysis does not necessarily take into account factors such as changes in business models and technology innovation that are expected to occur at each company going forward, and the results of the trial calculations are based on certain assumptions. In addition, scenario analysis of physical risks and transition risks in asset management operation at Sumitomo Mitsui DS Asset Management Company is planned to be disclosed in FY2022.

Since the publication of the TCFD report in FY2021, regarding physical risks in Japan, we conducted an analysis as per the SSP scenario used in the 6th report of the IPCC (Intergovernmental Panel on Climate Change) and clarified the assumed risk exposure for each region. Regarding transition risks, we expanded the analysis target scope from two sectors (that is, energy and power) to four sectors (addition of automobile and steel), based on the climate change-related policies shown in the decarbonization-oriented worldview as well as the trend of tightening regulations towards decarbonization. For details of the analysis methods, refer to the description in "4. Risk management, Scenario analysis."

Based on the results of this scenario analysis, the assumed risk exposure for transition risks is larger than that of physical risks, and under certain assumptions, transition risks may have a significant financial impact. In aiming to realize net zero emissions, we preferentially reflected the response to transition risks in our strategies, while recognizing the above point as a key in managing climate change risks.

Figure 3-3 Overview of scenario analysis

	Physical risks			Transition risks	
	Before	After		Before	After
Risk event	Water disasters			Policy changes Changes in the supply-demand balance	
Used scenario	IPCC*1/RCP*2 2.6 (2℃ scenario) IPCC/RCP8.5 (4℃ scenario)	IPCC/RCP2.6 [overseas] SSP *3 1-2.6 [domestic] (2℃ scenario) IPCC/RCP8.5 [overseas] SSP5-8.5 [domestic] (4℃ scenario)		NGFS*4 / Net Zero 2050 (1.5℃ scenario) IEA*5 / Net-Zero Emissions (1.5℃ scenario) NGFS / Current Policies (3℃ scenario)	
Analysis target	Corporate customers			Energy and power	Energy, power, automobiles *6, and steel
Region	Global			Global	
Analysis period	Up to 2050			Up to 2050	
Risk indicator	Credit costs expected to increase (credit costs)			Credit costs expected to increase (credit costs)	
Analysis results	Cumulative JPY55-65 billion	Cumulative JPY67-85 billion		JPY2-24 billion per year	JPY2.5 to 28 billion per year
		Domestic	JPY45-58 billion		
		Americas	JPY7.5-8 billion		
		Europe, Middle East, Africa	JPY11.5~12.0 billion		
		Asia and Oceania	JPY2.5-8 billion		

*1 Intergovernmental Panel on Climate Change
*2 Representative Concentration Pathways:
For example, "RCP2.6" means that the end-of-the-century radiative forcing (the level of radiation force that the energy entering and leaving the earth's surface has with respect to the Earth's climate) will be 2.6w/m².
*3 Shared Socioeconomic Pathway scenario:
Scenario that combines future socio-economic changes (e. g. population) and radiative forcing
*4 Network for Greening the Financial System
*5 International Energy Agency
*6 Analysis targets are OEMs (Original Equipment Manufacturers).

■ **Analysis results (physical risks)**

Regarding physical risks, cumulative credit costs are expected to reach JPY 67-85 billion by 2050. Looking at the annual average, additional credit costs due to physical risks would be only JPY 2-3 billion. Looking at the expected credit costs by region (Japan, the Americas, Europe/Middle East/Africa, and Asia and Oceania), the amount of credit costs in Japan is larger than other regions, reflecting the relative size of credit exposure. However, no overseas regions show a conspicuously large value, which means the difference between regions is considered to be minimal.

Based on the above, we believe that the impact of climate change-induced water disaster risk on a single-year financial conditions of SMBC will be limited. Moving forward, we will work to improve our analysis methods, and if risks are expected to materialize, we will strive to reduce our own risks while urging our customers to take action.

■ **Analysis results (transition risks)**

The calculation results show that credit costs are expected to increase by JPY 2.5 to 28 billion each year until 2050 under the 1.5℃ scenario vs. the Current Policies scenario[3]. The assumed financial impact is somewhat larger than for physical risks, so we believe there is a possibility that a significant amount of cost burden needs will be incurred in proceeding with the transition to net zero emissions.

Based on the results of this analysis, SMBC Group is focusing on enhancing its response to transition risks. Based on sectoral knowledge obtained through risk recognition and analysis, we first set medium-term reduction targets for portfolio GHG emissions in the power and energy sectors. With the reduction targets in mind, we will strive to strengthen risk management and support customers' decarbonization on the premise of engagement with stakeholders, towards the reduction of transition risks in the future. For details, refer to “ Net Zero Transition Plan” in this chapter.

[3] A scenario that assumes that the current climate change policies being implemented by each government will continue, but that countermeasures will not be strengthened.

(2) Awareness of opportunities associated with climate change

As shown in our worldview toward decarbonization, in order to realize net zero emissions, it is essential to transform the business model to significantly reduce GHG emissions, and to carry out technology innovation and large-scale capital investment for that purpose. The "Sustainable Development Scenario (SDS)" of the IEA refers to the possibility that over JPY 100 trillion additional investment[4] would be executed globally each year between 2021 and 2023, centered on the energy sector. In Japan as well, towards the realization of the 2030 goals advocated by the government, for example, it is expected that investment totaling about JPY 30 trillion would be needed for renewable energy power generation in the power sector, and investment of over JPY 1 trillion would be needed for Zero Emission Vehicle (ZEV) in the transportation sector.[5]

Under these circumstances, we understand that financial institutions will face increased demand for funds, business restructuring among customers, needs for new financial products and services, and needs for decarbonization-related equipment leasing. Also, financial institutions will need to carry out the following: sophistication of the disclosure system for climate-related information; formulation of climate change strategies and visions; pursuit of business development; and sophistication of risk management. This means financial institutions will have consulting needs for these new management issues. Opportunities to provide various financial services will increase for SMBC Group as well, so it will be important for us to provide multifaceted solutions that organically combine multiple business areas in SMBC Group for know-how integration.

SMBC Group will endeavor to provide financial support to meet the complex needs of our customers. For details, refer to " Net Zero Transition Plan" in this chapter.

[4]Converted to JPY from USD, based on the IEA World Energy Outlook 2020 (https://www.iea.org/reports/world-energy-outlook-2020?mode=overview)

[5] Calculation by SMBC based on various public data

Figure 3-4 Estimated amount of equity investment needed for the transition to a decarbonized society (domestic case examples)

Industry	Goals set by the government of Japan	Examples of expected equipment investment	Expected investment amount in the future
Power	Amount of power generated by RNE 330-350 billion kWh *1 (Compared to 2019: + 144.7 to 164.7 billion kWh)	Construction of RNE power plants	JPY**25.4** trillion *2
		Strengthening of grid systems in line with the expansion of RNE	JPY**1.5-4.8** trillion *3
Transportation	Vehicle storage battery manufacturing capacity 100 GWh *4	Construction of a (vehicle) storage battery factory	JPY**0.8** trillion *4
	Public charging infrastructure (150,000 stations) *4 (Including 30,000 quick chargers)	Construction and improvement of public charging stations (Standard charging and quick charging)	JPY**0.2** trillion *4
	Hydrogen station 1,000 places *4	Construction and improvement of public hydrogen stations	JPY**0.4** trillion *4

*1 Agency for Natural Resources and Energy: "Basic Energy Plan (Draft)" (2021.7.21)
*2 Compiled by SMBC with reference to METI, Power Generation Cost Verification Working Group "Past Discussions on Power Generation Cost Verification" (2021.7.12)
*3 Quoted from OCCTO "Interim Summary for Considering the Master Plan" (2021.5.20); costs for strengthening backbone systems (e. g. grid lines)
*4 Calculated by SMBC based on various infrastructure unit prices, with reference to METI "Green Growth Strategy towards Carbon Neutrality by 2050" (2021.6.18)

Figure 3-5 Main business domains of SMBC Group and growth opportunities associated with transition to net zero emissions

Business area		Assumed opportunity examples	Time axis
Banking	Wholesale	Opportunities for investment and lending will expand in line with the increase in the number of RNE power plants.	Short-term
		Lending opportunities will expand in line with the increase in equipment investment needs related to decarbonization.	Short- to mid-term
		Finance opportunities will expand in line with the increase in M&A needs towards business transformation.	Mid- to long-term
		Investment opportunities will expand for green innovation (e. g. investment in start-up companies holding decarbonization technology).	Mid- to long-term
	Retail	Along with growing awareness of sustainability in personal consumption and environmental consideration, financing and investment opportunities will expand.	Short-term
Securities		Underwriting opportunities will expand in line with the increase in equipment investment needs related to decarbonization (green bonds/equities, transition bonds/equities, etc.).	Short- to mid-term
		Business opportunities will expand through strengthening relationships with institutional investors (decarbonization-related Information provision, preference shown by institutional investors through engagement arrangements).	Short- to mid-term
		Opportunities for providing advisory and finance services will expand in line with the increase in M&A needs (for business reform).	Mid- to long-term
Leasing		Leasing and financing opportunities for decarbonization-related facilities and equipment will expand.	Short- to mid-term
		Opportunities to participate in RNE power generation business will expand (PV, biomass, wind, hydraulic, etc.).	Mid- to long-term
		Business opportunities related to the 3Rs (reduce, reuse and recycle) will expand (e. g., trading of used products, factory dismantling, rentals).	Mid- to long-term
Consulting		Consulting opportunities related to formulation of the decarbonization strategy, vision, etc. will expand.	Short-term
		Consulting opportunities for sustainability strategies and ESG management (TCFD response, etc.) will expand.	Short-term
Asset management		Relative investment performance will improve through strengthening the ability to conduct surveys on and analyze the non-financial information of investee companies such as climate change initiatives.	Short- to mid-term
		Business opportunities will expand due to growing investor needs for investment products that address the themes of climate change mitigation and adaptation.	Short- to mid-term
		New investment opportunities will expand in relation to companies with innovative technologies that contribute to the transition to a decarbonized society or to companies that have growth potential through business model transformation.	Mid- to long-term

(Short-term: about 3 years; medium-term: about 4-10 years; long-term: over 10 years)

(3) Risks and opportunities heatmap by sector

SMBC Group sorts out heatmaps by sector, referencing the recognition of risks and opportunities associated with climate change. Each heatmap evaluates the level of climate change impact in terms of risks and opportunities from both quantitative and qualitative aspects: typical quantitative aspects are expected risk exposure and expected amount of equipment investment by sector; and typical qualitative aspects are assumed scale of impact from the changes in "policies and legal regulations," "technology," "market," and "reputation" towards net zero emissions by sector, and priority areas in growth strategy in each country. Sectors subject to evaluation were extracted as per the definition of carbon-related assets in the supplementary guidance of the TCFD recommendations, and the degree of impact of transition risks, physical risks, and opportunities were classified.[6]

SMBC Group will use the sector-by-sector evaluation in the heatmap to determine the focus areas and reflect them in strategies undertaking initiatives aimed at reducing climate change risks and expanding growth opportunities. We will reference these evaluations when promoting both the strengthening of risk management and the pursuit of decarbonization businesses. We will continue to review sector evaluations in accordance with environmental changes in climate change-related policies, technologies, markets, and sophistication of quantification methods, which will lead to sophistication of our strategies.

[6]The "steel" sector is not defined as a carbon-related asset in the supplementary guidance of the TCFD recommendations. However, it was added to the evaluation targets as a carve-out from the "metals and mining" sector.

Figure 3-6 Risks and opportunities heatmap

	Transition risks	Physical risks	Opportunities
Power	Very High	Low	↗↗↗
Oil and gas	Very High	Middle	↗↗
Coal	Very High	Middle	↗
Air cargo	Low	Low	↗↗
Passenger aviation	Middle	Middle	↗↗
Shipping	High	Low	↗↗
Railroad	Low	Low	↗↗
Truck service	Middle	Low	↗
Automobiles and components	High	Low	↗↗↗
Metals and mining	Middle	Low	↗↗
Steel	High	Low	↗↗
Chemical products	Middle	Low	↗↗
Construction materials	High	Low	↗↗
Capital goods*1	Middle	Low	↗↗
Real estate	Low	Low	↗↗
Beverages	Low	Middle	↗
Agriculture	Low	Middle	↗↗
Packaged food and meat*2	Low	Middle	↗
Paper and forestry products	Low	Middle	↗

*1 Machinery, electrical equipment, construction, etc.
*2 Manufacture of packaged food products including dairy products and meat, etc.

<Evaluation process for each sector>
(Transition risks and physical risks) Refer to the risks related to policies and legal matters, regulations, technology, markets, reputation, impact on sectors assumed from chronic or acute risks, sector-by-sector scenario analysis results, etc.
(Opportunities) Refer to the areas that are considered future growth areas in domestic and overseas policies, equipment investment projection for each sector, etc.

Note that we have sorted out the status of credit exposure for each of the evaluation target sectors in the heatmap. Going forward, we will aim to build a portfolio that is resilient to climate change while referencing the assessment of risks and opportunities in the heatmap.

Figure 3-7 Status of credit exposure by sector[7] in terms of the TCFD recommendations

Sector	2021/03		2022/03	
	Credit exposure (¥ trillion)	Ratio (%)	Credit exposure (¥ trillion)	Ratio (%)
Power	7.9	3.2	9.0	3.5
Oil and gas	7.5	3.1	9.5	3.6
(Upstream/General and E&P)	2.6	1.1	2.6	1.0
(Upstream/Mining and equipment)	0.2	0.1	0.2	0.1
(Midstream/Storage and transport)	2.0	0.8	3.1	1.2
(Downstream/Refinery and sales)	2.2	0.9	2.9	1.1
(Gas utilities)	0.4	0.2	0.6	0.2
Coal (thermal coal)	0.1	0.1	0.1	0.1
Energy (including power) subtotal	**15.5**	**6.4**	**18.6**	**7.2**
Air cargo	0.2	0.1	0.2	0.1
Passenger aviation	1.5	0.6	1.4	0.5
Shipping	1.7	0.7	1.9	0.7
Railroad	1.7	0.7	1.6	0.6
Truck service	0.8	0.3	0.8	0.3
Automobiles and components	3.9	1.6	3.5	1.3
Transportation subtotal	**9.9**	**4.1**	**9.4**	**3.6**
Metals and mining	1.2	0.5	1.4	0.5
Chemical products	3.4	1.4	3.4	1.3
Construction materials	0.6	0.3	0.7	0.3
Capital goods *1	7.4	3.0	7.3	2.8
Real estate	11.8	4.8	13.4	5.2
Steel	2.0	0.8	2.3	0.9
Materials and buildings subtotal	**26.5**	**10.9**	**28.5**	**11.0**
Beverages	0.7	0.3	0.6	0.2
Agriculture	0.6	0.3	0.8	0.3
Packaged food and meat *2	1.2	0.5	1.2	0.5
Paper and forestry products	0.8	0.3	0.6	0.2
Agriculture, food, forestry products subtotal	**3.3**	**1.4**	**3.2**	**1.2**
Total of the above sectors *3	**55.2**	**22.7**	**59.8**	**23.1**
Grand total *4	**243.6**	**100**	**259.1**	**100**

*1 Machinery, electrical facilities, construction, etc.

*2 Manufacturers of packaged food products, including dairy products and meat, etc.

*3 Credit exposure of SMBC and major local subsidiaries, etc. (internal control basis)

*4 Total exposure of SMBC (including consolidated subsidiaries) (total assets on consolidated financial statements + off-balance sheet assets, etc.)

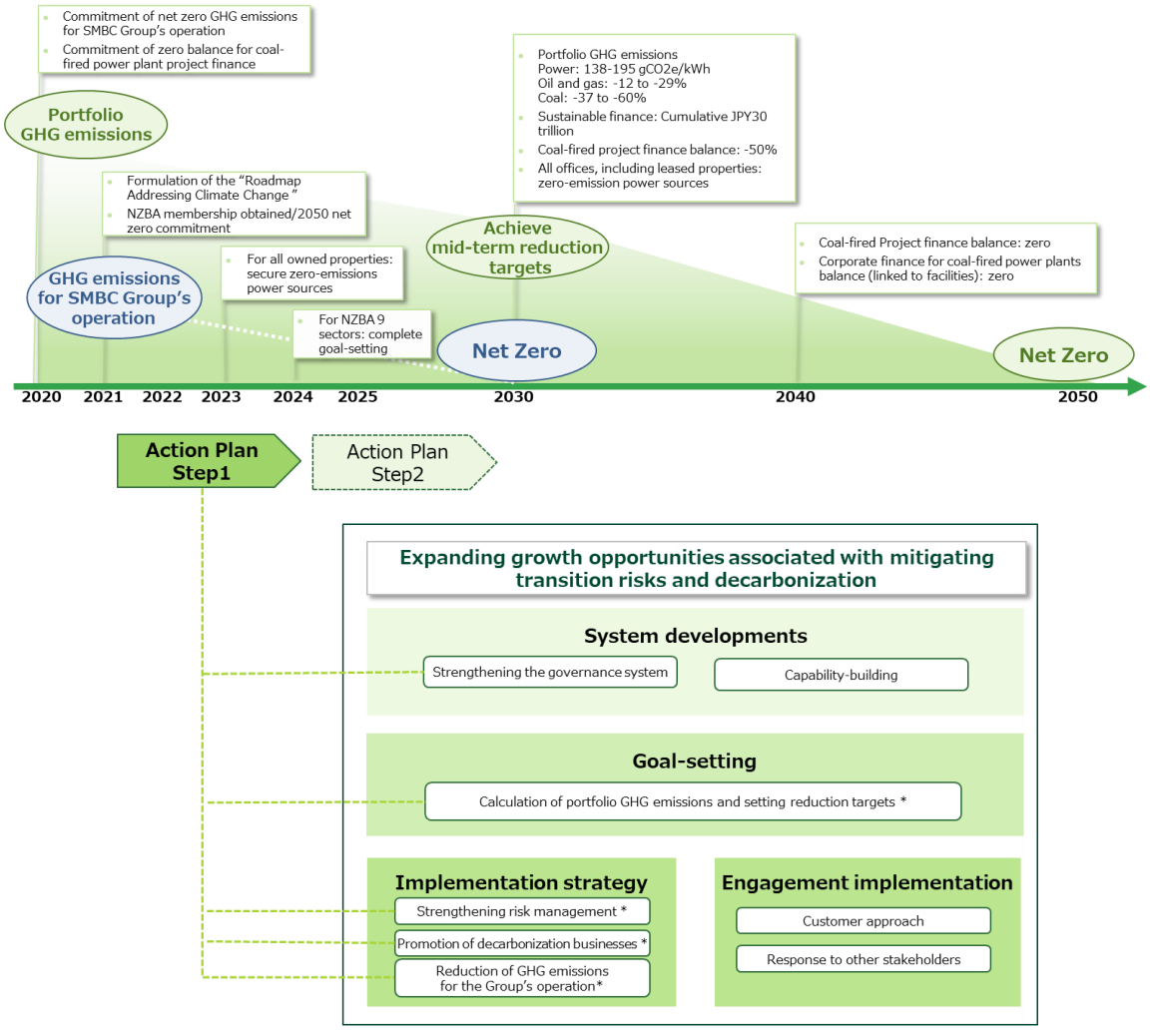
[7] With the revision of the TCFD recommendations in October 2021, the definition was expanded from conventional carbon-related assets.

(4) Net Zero Transition Plan

SMBC Group formulated the "Roadmap Addressing Climate Change " and the "Action Plan" in 2021 and has been accelerating efforts to secure resilience to climate change and capture growth opportunities. In the "Roadmap Addressing Climate Change," the five measures to be implemented during the period of the current mid-term management plan (MMP) are positioned as "Action Plan Step 1." These five measures are strategic initiatives that will serve as the axes for promoting net zero emissions.

We have updated the "Roadmap Addressing Climate Change " as a "Transition Plan" and systematized a series of goals and actions for SMBC Group to achieve net zero emissions. Note that it is planned to include the measures of “Action Plan Step 2” starting from FY2023 in the transition plan. By executing the transition plan, we will strive to reduce transition risks and expand growth opportunities associated with decarbonization, aiming to achieve net zero emissions.

Figure 3-8 Net Zero Transition Plan



* Main measures in Action Plan Step 1

Purpose of achieving net zero emissions

As clarified in the “SMBC Group Statement on Sustainability”, we are aiming to create a society in which everyone in the current generation can enjoy economic prosperity and well-being and to pass that society on to future generations. In order to achieve this philosophy, we will address climate change issues and work towards the realization of net zero emissions.

System developments

■ Strengthening the governance system

As described in “2. Governance”, SMBC Group has clarified responsibilities regarding sustainability in terms of both supervision and execution and established relevant systems. Under this system, transition plan will be appropriately supervised and reflected in business execution. When formulating transition plan, they are deliberated by the Management Committee, and the Group CSuO reports on them to the Board of Directors.

Regarding efforts to promote transition plan, the Group CSuO appropriately reports on them to the Board of Directors and the Sustainability Committee. Looking forward, we will properly disclose the progress of the transition plan and performance against goals, etc. and periodically review the plans based on the opinions of relevant committees.

■ Capability-building

SMBC Group introduced the “Sustainability University” as a systematic framework for sustainability training. This framework enables each employee to acquire the knowledge necessary to contribute to the realization of sustainability through their respective works.

In addition, under the title of "CSuO Channel," the Group CSuO holds study sessions for employees to explain SMBC Group's sustainability initiatives, and also visits sales offices to directly listen to the voices of the staff members in charge.

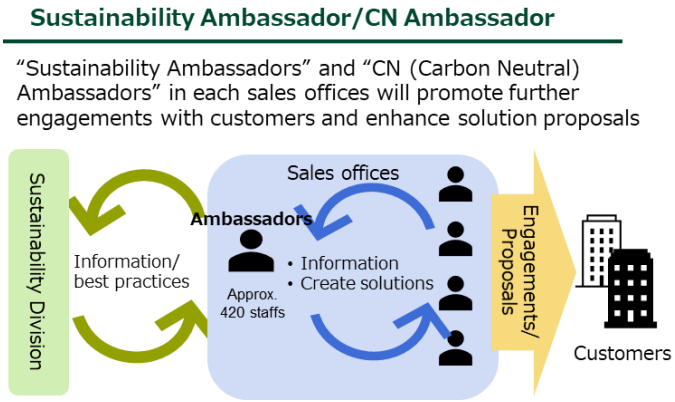
Moreover, starting in FY2022, the Wholesale Banking Unit of SMBC appointed Sustainability Ambassadors and CN (Carbon Neutral) Ambassadors at each sales office. Each ambassador serves as a hub for information sharing between the headquarters and sales offices as well as among sales offices; and implements measures to foster awareness of sustainability among employees and strengthen their proposal capabilities. We aim to be the “first-call bank for sustainability” by supporting our customers in their sustainability management initiatives.

Through these measures, we will continue striving to improve sustainability literacy within the company.

Figure 3-9 Initiatives for capability-building

Initiative	Target scope	Description
Sustainability University	Employees	● Disseminate sustainability efforts depending on job description and hierarchy. ● "Sustainability Basics Study Session" for all employees ● Sustainability-related programs in new hires training, layer-specific and BU-specific training
CSuO Channel	Employees	● The CSuO explains about sustainability initiatives. ● The CSuO visits sales offices and listens to the opinions of persons in charge.
Sustainability Ambassador / Carbon Neutrality (CN) Ambassador	SMBC Wholesale Banking Unit	● About 420 people in total are appointed at each sales office. ● Raise the literacy level concerning sustainability, promote dialogue with customers on sustainability and decarbonization, and continue to present solution proposals.

Figure 3-10 Overview of Sustainability Ambassadors/CN Ambassadors



Target-setting

As described in Figure 3-8, SMBC Group has set the targets of reducing its own GHG emissions to zero by 2030 and reducing portfolio GHG emissions to net zero by 2050. Regarding the volume of portfolio GHG emissions, we are formulating medium- to long-term reduction targets for each sector, and have already completed goal-setting for the three sectors of power, oil and gas, and coal.

■ Calculation for and setting of medium- to long-term targets for priority sectors

When setting reduction targets for portfolio GHG emissions, we extract the target sectors, referencing scenario analysis results and relevant heatmaps. For GHG emissions volume by sector, we calculate actual values in accordance with the IEA's SDS (Sustainable Development Scenario) and NZE (Net Zero Emissions by 2050 Scenario), and consider emissions reduction targets based on the stated values.

In the future, we will gradually expand the target scope in accordance with the NZBA guidelines. For details, refer to “5. Metrics and Targets, Portfolio GHG Emissions” and “Appendix 2. Portfolio GHG Emissions.”

■ **Sharing recognition with customers regarding transition pathways**

In formulating emissions reduction targets, it is necessary to consider future portfolio trends, while also grasping the customer's long-term strategy for transitioning to net zero emissions and the expected equipment investment demand that accompanies it. After that, we will exchange opinions with the customer about the future direction of GHG emissions reduction, agree on a pathway for the transition, and then determine specific target values.

Implementation strategy (1): Strengthening risk management

■ **Expanding the scope of scenario analysis**

By quantifying risk exposure and sharing risk awareness, it will be possible to smoothly discuss the sophistication of portfolio management towards net zero emissions.

As described in this chapter “Awareness of risks associated with climate change,” SMBC Group conducts scenario analyses on transition risks for the four priority sectors of power, energy, automobiles, and steel. The power and energy sectors are considered to be highly affected by climate change and carry significant transition risks, so we subject them to scenario analysis. Scenario analysis is also being conducted in the automotive and steel sectors, as they are assumed to have a certain level of transition risks and subject to the NZBA's calculation of GHG reduction targets. Analysis results are presented to customers and discussed with the sales department in order to share mutual recognition of the external environment and individual company strategies with a view to decarbonization.

In the future, we will expand the scope of scenario analysis, more accurately grasp the assumed risk exposure and reflect it in the transition plan. Also, we will communicate the details to our stakeholders including customers.

■ **Sophistication of portfolio management**

Based on the established portfolio GHG emissions reduction targets, we will promote management and monitoring of GHG emissions, carbon intensity, and credit balance based on sector within the risk appetite framework.

In the future, we will pursue portfolio management with an eye on gradual reduction of GHG emissions toward the targets by 2030, while considering the increase/decrease in GHG emissions of each project targeting the sectors where reduction targets have been set.

■ **Sophistication of credit management**

As described in “4. Risk management, Policies for specific businesses and sectors,” SMBC Group has set policies for each of the following sectors and businesses (thought to have significant effects on climate change): coal-fired power generation; oil and gas; coal mining; palm oil plantation development; and deforestation. In addition, we are considering support for major companies in the power and energy sectors based on the status of each company's formulation of long-term strategies on climate change and information disclosure on GHG emissions.

Going forward, we will consider enhancing and tightening transition risks management, such as making credit decisions that take into account the impact of carbon intensity and carbon prices for each individual company.

Implementation strategy (2): Promotion of decarbonization business

In order to realize a decarbonized society, innovation and large-scale equipment investment are indispensable for drastic reduction of GHG emissions. This process would expand the demand for funds as well as generate the demand for business restructuring, new financial products and services, and related consulting. Thus, there will arise growth opportunities for SMBC Group.

SMBC Group has established the "Sustainable Solution Department" within Sustainability Division as a hub function for the Group/global collaboration to promote decarbonization business. Led by Sustainable Solution Department, the entire Group will provide end-to-end support for customers, from providing growth capital to consulting and provision of solutions, by leveraging the comprehensive strengths of the Group and the knowledge and know-how gained through its global network.

Going forward, based on the worldview of decarbonization and the heatmap of opportunities, we will improve our approaches to and solutions for sectors and individual companies in terms of both quality and quantity, and reflect them in the respective transition plan. We will accelerate the promotion of new initiatives matching customer needs that evolve continuously such as the following: develop decarbonization support tools using digital tools; develop solutions for energy conversion; provide measures that help promote decarbonization for the entire group of companies included in the supply chain of each customer, etc.

Figure 3-11 Solution lineup for responses to climate change

Stage of customer response: Early stage → Execution stage

Category	Main customer needs	Solution proposal	Main actor of proposal
Consulting (1)	Preliminary information disclosure	Sorting out the relationship between SDGs and the main business, formulation of materiality, KPI-setting, reflection into the MMP and business plan, creation of integrated reports, etc.	Japan Research Institute (JRI) SMBC Consulting
	In-house system improvements, awareness cultivation	Consulting for revision of internal regulations and the personnel system, internal expansion measures, etc.	
Finance (1)	External PR triggered by funding	Evaluation-type loans (loans for promoting SDGs, etc.)	Japan Research Institute (JRI)
		SDGs leasing (evaluation type/donation type)	Sumitomo Mitsui Finance and Leasing
Collaboration with other companies (1)	Introduction of sustainability-related products and services from other companies	Various types of matching support (RNE supply, AI judgments on supply-demand and digitalization, energy-saving products/services, environmentally friendly products, etc.)	SMBC
Decarbonization	Visualization and analysis of GHGs	"Sustana" (a tool for GHG quantification and analysis)	SMBC
	Formulation of a roadmap toward decarbonization	Consulting for formulating medium- to long-term reduction plans	Japan Research Institute (JRI)
	GHG reduction measures	Leasing of energy-saving/RNE facilities, supply of carbon-free power	
		Conversion of business-purpose vehicles to EVs, installation of charging facilities	Sumitomo Mitsui Finance and Leasing
		Replacing factory facilities, selling facilities at the time of relocation, dismantling works	
Consulting (2)	Strengthening information disclosure	Consulting for the TCFD response, acquisition of SBT certification, etc.	Japan Research Institute (JRI)
		"Climanomics," a tool for quantifying the financial impact of climate change (collaboration with IBM Japan)	SMBC
Finance (2)	External PR triggered by funding or asset management	Sustainability-linked loans/bonds, green loans/bonds, transition loans/bonds, etc.	SMBC Nikko Securities
		Project finance related to RNE	SMBC
		Green deposits	SMBC
Collaboration with other companies (2)	Responding to energy source changes	M&A in line with industrial reorganization, asset carve-out, referral for a partnership with a start-up that has cutting-edge technology, etc.	SMBC Nikko Securities

■ Expansion of sustainable finance

SMBC Group actively engages in financing related to environmentally friendly businesses, social projects, and the transition to a decarbonized society. We have set a goal to execute "JPY 30 trillion of finance that contribute to green finance and sustainability finance" over 10 years between FY2020 and FY2029. To date (up to FY2021), a total of JPY 8.2 trillion (including JPY 7.5 trillion in green finance) has already been implemented.[8] To achieve this target, we will work together with our customers to solve social issues, including climate change issues.

Figure 3-12 Achievements in sustainable finance

(unit:JPY trillion)

Category	Classification	Japan	Asia	Americas	EMEA	FY2020～FY2021
Sustainable Finance		2.4	1.2	2.2	2.3	8.2
Of which is Green Finance*	Finance for renewable energy (composition amount)	0.3	0.2	0.5	0.3	1.3
	Green loans/bonds、Sustainable loans/bonds Sustainability-linked loans/bonds (loans:originating amount、bonds:underwriting amount)	1.0	1.0	1.5	1.7	5.2
	Other Green Finance (Originating amount of transaction of SMFL, various types of assessment-based loans and bonds and loans in line with the Principle for Positive Imapct Finance,etc.)	0.7	0.0	0.1	0.1	1.0
	Subtotal	2.0	1.2	2.1	2.2	7.5

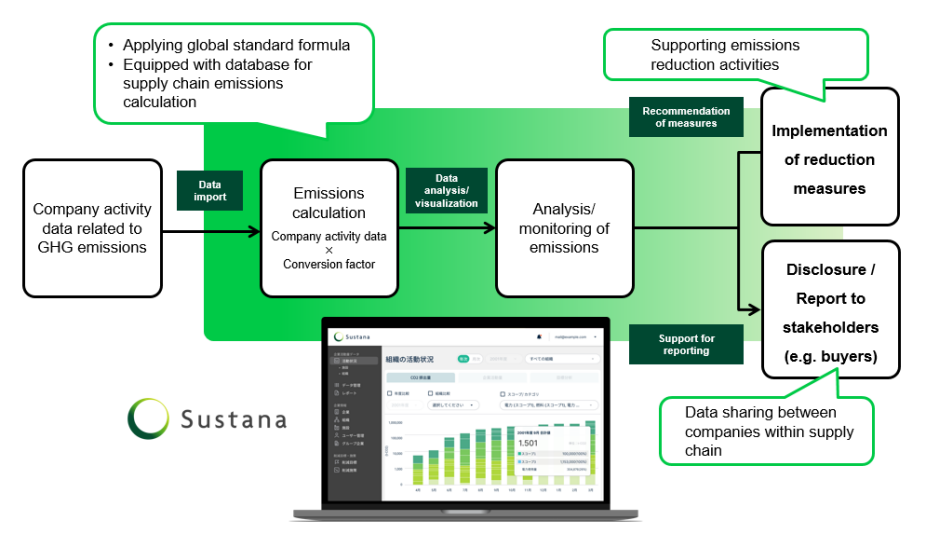
* Financing for project that contributes to the environment (i.e.,project falling within the green project categories set forth in International Capital Market Association(ICMA)'s Green Bond Principles)

[8]Including finance deals where funds will be used for corporate transitions or social projects

[Column] Examples of decarbonization business promotion

1. GHG emissions visualization service “Sustana”

SMBC provides "Sustana," a cloud-based service that enables a series of operations, from calculating CO2 emissions throughout the supply chain to planning and implementing reduction measures. It estimates emissions from data on customer activities and provides support for the implementation of reduction measures.



2. Green deposits

Green deposits are used to allocate funds entrusted to us by customers to financing for environmental purposes, especially renewable energy, within ESG.

Fund allocation is made to projects such as renewable energy and energy-saving projects based on the “SMBC Green Deposit Framework,” which was formulated with the support of Sustainalytics, an ESG rating agency.

3. Investment in Carbonplace

SMBC Group has set the JPY 20 billion “Sustainability Investment Fund” to strengthen relationships with partner companies that possess advanced technologies.

In May 2022, SMBC invested in and participated in “Carbonplace,” a platform for carbon credit transactions, as the first project using this fund. The platform will provide customers with the opportunity to easily access high-quality carbon credits. It is being developed by several major financial institutions, with operations slated to start from December 2022.

4. Efforts related to hydrogen

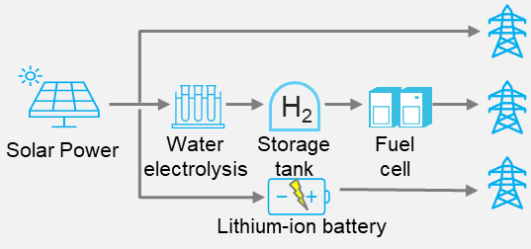
Hydrogen has a wide range of usage and is a clean energy that does not emit CO2 when consumed. It also draws high expectations under the IEA's Net Zero Emission scenario as a next-generation energy that contributes to CO2 reduction in sectors where electrification or decarbonization is difficult. In addition, Japanese companies have advanced technological capabilities related to hydrogen energy, and the expanded usage of hydrogen is expected to greatly contribute to the realization of a decarbonized society and the strengthening of Japan's industrial competitiveness.

SMBC Group has built a broad network with hydrogen-related businesses in Japan and overseas, and is constructing cross-industry projects and making policy recommendations. The Group participates as a board member in the Japan Hydrogen Association (JH2A), which was established in 2020 for the purpose of implementing hydrogen supply chain in the whole society. In addition, the Group participates in the international initiative "Hydrogen Council" as the only Japanese financial institution.

Based on the wealth of knowledge gained through participation in these frameworks, we are providing solutions to our customers. For example, we are providing finance and leasing for the power supply systems and hydrogen station business, and also investing in funds aimed at developing technology. We will continue to popularize hydrogen and strengthen our responses to climate change by building a hydrogen supply chain, creating new demand, promoting innovation and providing funds to business customers.

<Hydrogen-related project finance>

We are providing project finance for the project of power supply system in French Guiana that combines solar power generation, hydrogen storage facilities, and storage batteries.
This is the world's first project to enable a 24-hour stable supply of renewable energy by installing large-scale hydrogen facilities.



Implementation strategy (3): Reduction of in-house GHG emissions

In Japan, the "Act on Rationalizing Energy Use" (Energy Saving Act) obligates each company to comply with the following: improve energy management system; create a medium- to long-term plan; and realize 1% or more reduction in annual average for the energy consumption unit.

SMBC Group has announced its goal to “realize net zero in-house GHG emissions by 2030” and is working on the reduction. SMBC is not only firmly fulfilling these obligations under the Energy Saving Act, but also trying to reduce energy consumption at each office as per the operation management based on the Act.

Looking forward, we will promote the introduction of a platform for aggregating GHG emissions, switch to renewable energy, etc. for power sources, and accelerate the process to make power consumption clean.

■ Concrete efforts to reduce GHG emissions

From FY2022, we introduced a GHG emissions aggregation platform to SMBC, and we are planning to implement this at our other Group companies as well. In addition to aiming to automate and improve the efficiency of data collection, we will also consider applying data visualization and analysis to reduction measures.

In April 2022, we switched all source of electricity used by our four Head Office buildings (Tokyo Head Office, East Tower, Osaka Head Office, Kobe Head Office) to RNE. In addition, we are planning to switch the power source for self-owned properties, computer centers, and leasing properties to renewable energy, etc., and utilize EVs and FCVs to reduce GHG emissions from other than power. Moving forward, we plan to promote the initiatives at each of the Group companies and overseas bases as well.

We are promoting the introduction of renewable energy through the following as well: installation of self-consumption mega-solar power generation facilities in idling space owned by SMBC; and effective use of offsite corporate power purchase agreement (PPA).

Figure 3-13 Overview of in-house GHG emission reduction plan

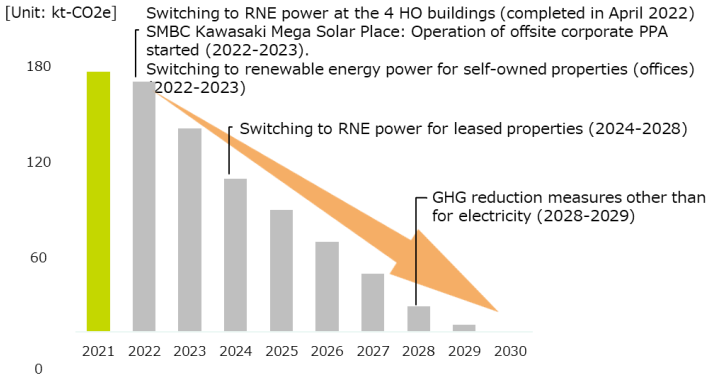


Figure 3-14 SMBC Kawasaki Mega Solar Place

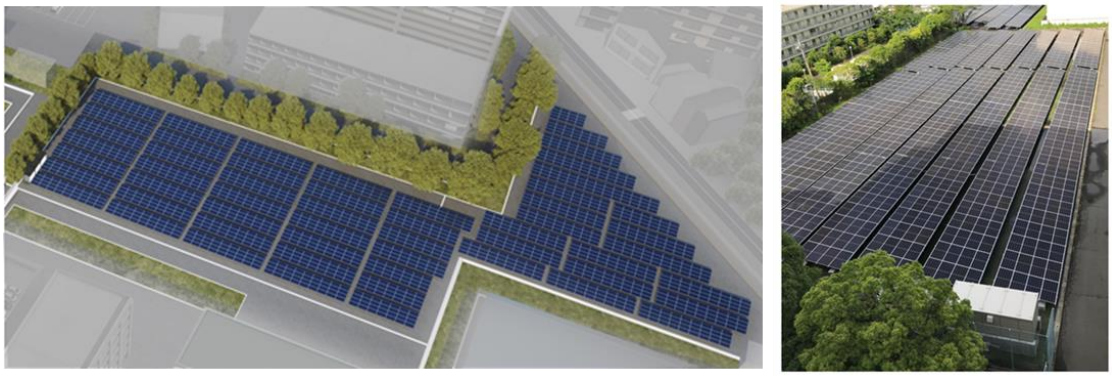
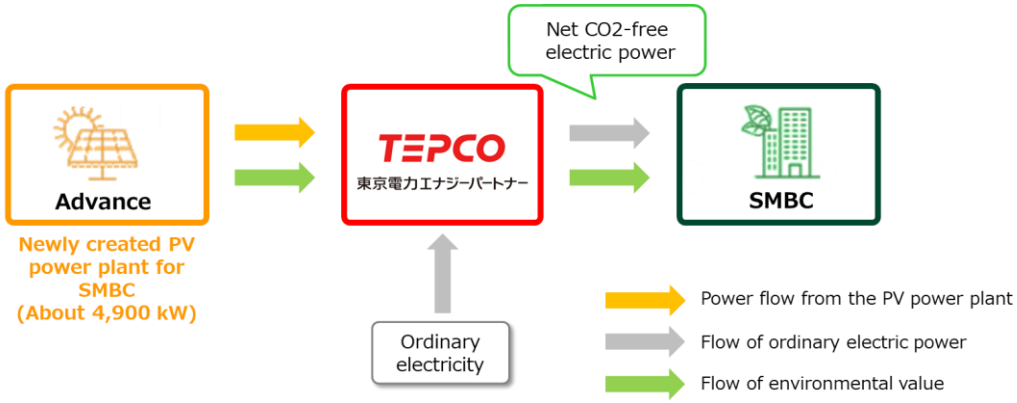


Figure 3-15 Offsite corporate PPA Scheme[9]



Engagement activities

■ Strengthening customer engagement

Dialogues (engagement) with customers are indispensable to realize the expansion of growth opportunities in line with reduction of transition risks and decarbonization. Thus, it is important to share common understanding among SMBC Group, customers, and the society concerning the paths to decarbonization in each industry and sector.

SMBC Group conducts study sessions for sales representatives (RM/Relationship Management) as part of the efforts to improve literacy and knowledge among staff. Also, we extract the sectors and individual companies that are of high priority in terms of both risk management strengthening and promotion of decarbonization business. Then, through mutual information exchange, we share issues related to climate change and formulate a solution plan for each company. When implementing solutions, we solve problems with integrated support across the entire Group in response to a wide variety of needs.

[9]Press release: Introduction of renewable energy using offsite corporate PPA (https://www.smbc.co.jp/news/j602615_01.html) (only in Japanese)

For major customers in sectors where transition risks are assumed to be high, we provide them with particularly deep engagement through exchange of opinions on the following points: methods to sophisticate risk management based on assumed risk exposure of each company per scenario analysis; each of their GHG emissions measured by us as well as reduction volume as projected by each company; discovery of solutions using “Sustainability Karte,” a tool for understanding the strategies and challenges of each company toward decarbonization, etc.

Going forward, we will continue to accumulate knowledge on sector-specific net-zero transitions as we understand how our customers think about climate change, and consider the impact of structural changes in the economy, industry, and society related to climate change on our customers' businesses. Through these efforts, we will expand our engagement targets and deepen our approach.

We will continue to support our customers in the transition to net zero emissions while mutually confirming their perceptions about transition. Thereby, we will help them create growth opportunities related to decarbonization, help them reduce transition risks, and contribute to the sustainable growth and improvement of enterprise value for each customer over the medium to long term.

Figure 3-16 Engagement flow

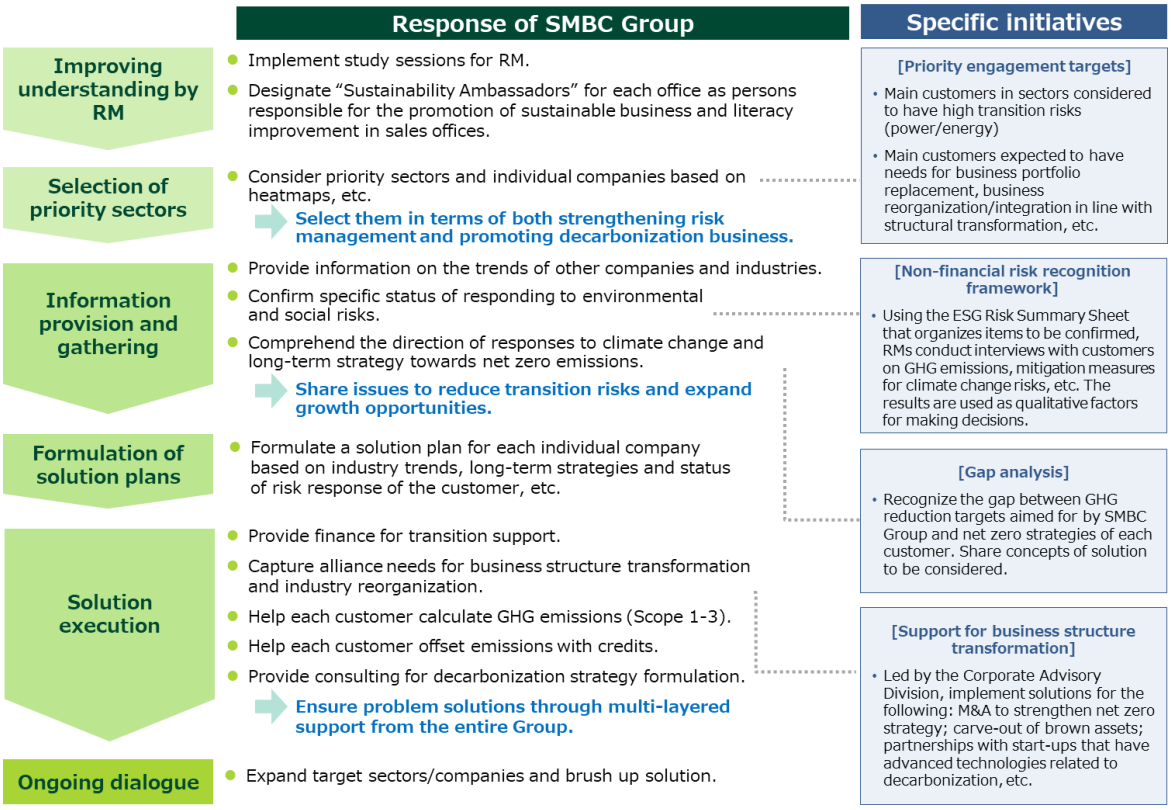


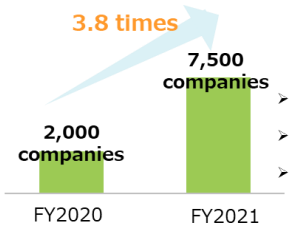
Figure 3-17 Engagement-related achievements

Study sessions for RMs (relationship management sales representatives) are held regularly.

Target scope	Main themes	Number of sessions/participants in FY2021
All employees	Contents of the TCFD Report	Twice (cumulative total of 900 people)
CN Ambassadors	Trends in each industry related to decarbonization	8 times (cumulative total of 70 people)
Domestic RMs	Customer trends and solutions related to sustainability	11 times (cumulative total of 2,700 people)
Overseas RMs	ESG finance	6 times (cumulative total of 150 people)

In-depth engagements based on capability-building

Achievements by SMBC



- Climate change related: **About 4,700 companies**
- Large companies: **About 400 companies**
- SMEs: **About 7,100 companies**

- Number of customers for which engagement was conducted increased 3.8-fold in one year.

Achievements by other Group companies

SMBC Nikko: About **60** companies
(Domestic underwriting of ESG bonds, ESG IPOs and underwriting of ESG public offerings)

[Case] Lead manager support for green IPO (Japan: Renewable Japan)

- Green IPO framework, formulated in line with the Green Bond Principles of ICMA, obtains third-party certification.

JRI: **About 100** companies
(Consulting orders for TCFD reaction, ESG strategy, etc. received)

[Case] Roadmap formulation support (Japan: Oil and gas company)

- JRI was appointed as an advisor for roadmap formulation support towards decarbonization.
- Solution proposals necessary for strategy execution were presented.

Figure 3-18 Examples of customer engagement

Transition finance support (for Sumitomo Chemical Group)

- Sumitomo Chemical Group considers it their responsibility to reduce GHG emissions from manufacturing processes to near zero, and has set a target of 50% reduction by 2030 compared to FY2013 (Scope 1 and 2), with a net zero reduction goal by 2050. Thus, they have improved relevant systems and formulated a specific investment plan to achieve the targets.
- SMBC conducted engagements with the company about their efforts towards net zero emissions and was able to confirm the following: (1) commitment by the management team is clear; (2) it has built an organizational structure dedicated to carbon neutrality promotion, in addition to the governance system that includes supervision of the Board of Directors, to ensure the effectiveness of its strategies; and (3) construction of LNG-fired power generation facilities, which is the core of the investment plan, is one of the main measures to achieve the medium- to long-term environmental targets.
- When proposing to Sumitomo Chemical Group on finance support for the construction of the LNG-fired power plant, we saw it as a good opportunity to communicate the appropriateness of the company's transition strategy and the advanced nature of its various initiatives to the general public. Thus, regarding

the use of transition finance and the finance framework formulated for that, we applied for the transition finance model certification by the Ministry of Trade, Economy, and Industry (METI).

<Comments from Sumitomo Chemical Group>

- This loan was selected by METI as the first model case of transition finance in the chemical sector, and many people were able to understand our advanced strategies for the transition period to achieve carbon neutrality.
- We hope that SMBC will continue to present us proposals to support the promotion of CN and work together with us to solve social problems.

Transition support through ESG finance (U.S.: Company A/LNG supply)

- The procurement, liquefaction and supply of LNG, which are Company A's main businesses, have a lower environmental load than the stages of mining and consumption. However, it supports decarbonization for LNG consumers, or its customers, using a highly transparent approach based on science.
- Through continuous communication with Company A, SMBC understood that it is proactively working on the following for decarbonization: ensuring proper management of GHG emissions data throughout the whole LNG value chain; and providing such data to LNG consumers.
- In order to support these efforts of Company A, we designed a custom-made financing scheme in this project together with the customer. In general sustainability-linked loans, the interest rate fluctuates according to the achievement status of the goals set in advance. However, in this finance, an innovative scheme was adopted in that a certain percentage of the customer's investment amount for transition is deducted from the interest rate, etc. (there is an upper limit). (If customers do not continue to implement decarbonization strategies, it may lead to interest rate increases.)

■ Strengthening engagement with other stakeholders

SMBC Group is involved in the formulation of international standards and decision-making on policies, considering the social influence as a financial institution. We participate in various international initiatives aiming for net zero emissions by 2050, such as GFANZ[10] and NZBA, and in the Partnership for Carbon Accounting Financials (PCAF), a joint initiative of financial institutions aiming to standardize the measurement and disclosure of GHG emissions. By providing opinions from the standpoint of a Japanese financial institution, we play certain roles in establishing international standards. At the same time, we also participate in various committees and study groups related to climate change sponsored by ministries, local governments, research institutes, etc. in Japan.

Also, we regularly exchange opinions with government agencies and financial supervisory authorities, explain our efforts to address climate change, and are involved in formulating various policies and public guidelines related to climate change. From July 2021, SMBC has served as the chairman of the Japanese Bankers Association (JBA), and has been responsible for formulating the "JBA Initiative for Realizing Carbon Neutrality."

In addition, SMBC Group regularly carries out engagements concerning climate change not only with customers but also with other stakeholders such as investors and environmental NGOs. in such occasions, we exchange opinions with them on the direction of our net zero transition strategy and receive useful suggestions regarding specific improvement points, which we reflect some of the points in our operations.

In addition, as a result of our efforts to realize sustainability, including climate change measures, SMBC Group has been a constituent of many of the world's major ESG indices.

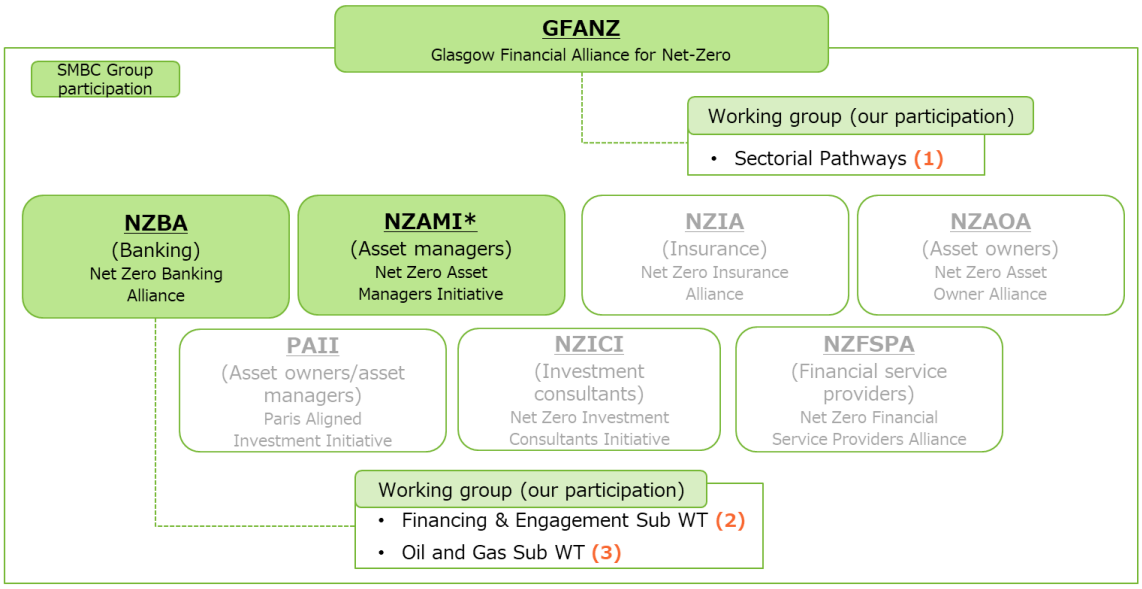
Going forward, through exchanges of opinions with each stakeholder, we will strategize useful advice and recommendations and reflect them in our transition plan, while continuing to provide useful information to the world.

[10] Glasgow Financial Alliance for Net-Zero: A coalition of financial institutions aiming for net zero emissions by 2050

Figure 3-19 Contents of dialogues with other stakeholders

Stakeholders	Contents of Dialogue
International initiatives	● Formulation of international standards for the net zero transition of financial institutions
Various committees and study groups in Japan	● Information exchange on new technologies and industry trends to secure business opportunities and acquire knowledge
Japanese Government	● Roles expected of financial institutions in addressing climate change risks and customer engagement ● Views of financial institutions on trends in international initiatives for the transition to net zero emissions
Investors	● Reorganization to strengthen sustainability initiatives ● Thoughts on reduction targets for portfolio GHG emissions ● Stance towards fossil fuel sectors and the direction of exposure management
NGO	● Policy for coal-fired power generation and coal mining, policy for setting such loan balance reduction targets ● Formulation of policies for palm oil plantation development and deforestation projects

Figure 3-20 Examples of international initiatives: Participation in Working Groups at GFANZ and NZBA



Status of discussions in the working groups	
(1)	Discussing decarbonization pathways for the steel, air transport, and oil and gas sectors, considering the views of the respective industries.
(2)	Discussing the creation of guidelines to promote transition finance.
(3)	Discussing how to set a portfolio GHG emissions reduction targets for the oil and gas sector.

* Sumitomo Mitsui DS Asset Management is a member.

Figure 3-21 Domestic and international initiatives and ESG indices

[Column] Participation in the TNFD Forum: Response to natural capital and biodiversity

Climate change issues are interconnected with natural capital.

Natural capital refers to natural resources such as plants, animals, air, water and soil. Damages to natural capital due to climate change will have a major impact on human life throughout the supply chain. The stability of natural capital is supported by biodiversity, and any loss in biodiversity has a wide-reaching impact on the environment, economy and society.

SMBC Group believes that the loss of natural capital, including biodiversity, may have potential impacts on a wide range of business activities as a financial group, such as increase in risks, and damage to the value of financial assets held. On the other hand, we believe that proper conservation of natural capital will strengthen the foundation of society and contribute to mitigation of and adaptation to climate change. Under these circumstances, we will pursue a wide range of information disclosure activities related to nature through our participation in the TNFD Forum, which is a stakeholder organization that supports the “Task Force on Nature-related Financial Disclosures (TNFD).” TNFD is an international organization that is trying to build a framework for appropriately assessing and disclosing risks and opportunities related to natural capital.

SMBC Group considers the loss of biodiversity as one of our Top Risks, recognizing that inadequate responses to environmental issues throughout the value chain will have significant impact on our corporate management. In addition, considering the impact on natural capital including biodiversity, we prohibit support for new projects that are recognized to have a significant negative impact on the wetlands specified in the Ramsar Convention and UNESCO-designated World Natural Heritage sites.

4. Risk Management

(1) Climate change risk identification and assessment process

SMBC Group recognizes that increase in extreme weather events and natural disasters or inadequate responses to climate change may involve risks that have a significant impact on corporate management, so that we identify the risks related to climate change as one of the Top Risks. Given that, we classify climate change risks by category and timeframe, and sort out the transmission routes and impacts. In addition, we create a risk heatmap for each sector and properly manages them depending on the assumed risk levels.

■ Top Risks

SMBC Group identifies the risks that are particularly material in terms of corporate management as "Top Risks." When selecting Top Risks, we comprehensively gather a wide range of risk events, assess the occurrence probability of assumed risk scenarios and their impact on the corporate management, and then hold lively discussions on them at the Group Management Committee, etc. In addition, the Board of Directors and the Risk Management Committee (an internal committee of the Board) verify the adequacy of Top Risks, etc.

With the awareness of solving environmental issues rising internationally and with the relevant policy formulation progressing, SMBC Group recognizes that inadequate responses to climate change involve risks that may materially affect the corporate management, positioning climate change-related risks as one of the Top Risks, from the viewpoints of physical risks and transition risks.

Figure 4-1 Top Risks

Slowdown of the global economy	Global economic slowdown due to accelerating global inflation and China's zero-coronavirus policy
Rapid fluctuations in resource prices, financial and foreign exchange markets	Sudden market changes due to the accelerated pace of monetary tightening in major countries and capital outflows from emerging countries
Sudden deterioration of the non-JPY funding environment	Sudden difficulties in non-JPY funding due to market turmoil, etc.
Economic stagnation in Japan	Deteriorating international competitiveness and economic stagnation due to delays in Japan's industrial policies and the decreasing working population
Japan's fiscal instability	Emergence of Japan selling due to the country's increasing government debt burden
U.S.-China hegemony battle	Deterioration of the business environment due to growing concerns over human rights issues and economic security
Tensions from the Russia-Ukraine war	Soaring resource and food prices and supply chain disruptions due to European economic sanctions against Russia
Instability in the Middle East and Asia	Soaring resource prices due to regional instability brought about by declining U.S. involvement in the Middle East
Political turmoil and social instability faced by major countries	Growing social divisions over the U.S. midterm elections, etc., and regional unrest over the Northern Ireland problem
Spread of serious infectious disease	Global economic slowdown due to the spread of infections and the strengthening of quarantine measures in line with the emergence of powerful mutant strains
Occurrence of disasters such as large-scale earthquakes, storms and floods	Occurrence of human and material damages due to large-scale natural disasters such as earthquakes, volcanic eruptions, and extreme weather events
Lack of preparedness for cyber attacks and financial crimes	Diversification of national-level attacks and methods, increased cyber attacks on critical infrastructure
Changes in industrial structure due to technological innovation	Impact on our competitiveness from the rapid digitization of financial services
Inadequate response to climate change risks and environmental issues	Worsening reputation and occurrence of stranded assets due to inadequate response to environmental issues (GHG reduction, ecosystem conservation, etc.)
Inadequate response to human rights issues	Deterioration of reputation due to inadequate response to forced labor, racial discrimination, etc.
Inappropriate labor management	Deterioration of reputation due to inadequate response to gender issues and workstyle reform
Misconduct such as inappropriate sales activities	Administrative penalties and reputational damage due to employee misconduct and serious discipline violations
Inadequacy in the operational resilience system	Increased negative impact on customers and deterioration of reputation due to information leakage, system failures, etc.
Inadequate preparedness to deal with heightened regulatory and supervisory perspectives	Administrative penalties and deterioration of reputation due to inadequate improvement of the AML/CFT system, etc.
Difficulty in securing human resources	Restrictions on business operations and deterioration of our competitiveness due to a lack of human resources and specialized personnel

(Note) The above items are only some of the risks recognized by the SMBC Group. Certain risks other than those stated above could also have particularly adverse effects on our corporate management.

■ Classification of climate change risks

SMBC Group sorts out climate change risks by category and analyzes the expected impacts for each of the short-, medium-, and long-term timeframes. For details, refer to “3. Strategy, Awareness of risks associated with climate change.”

In addition, SMBC Group creates a risk heatmap for each of the sectors that are significantly affected by climate change. This heatmap clarifies the level of climate change risks by sector. For details, refer to “3. Strategy, Risks and opportunities heatmap by sector”

(2) Management process for climate change risks

In order to achieve the net zero target, SMBC Group internally shares the awareness of the climate change risks identified and assessed within the "Risk Appetite Framework" on the basis of securing appropriate risk-return levels; and at the same time, we promote engagement for the sectors with large GHG emissions and ensure adequate control of credit portfolio.

In the actual operations, we quantitatively grasp the impact on SMBC Group in advance through estimating the credit costs of physical risks and transition risks by scenario analysis; and we verify the sufficiency of the Group's responses to climate change response through analyzing and evaluating it as per the Risk Register and KREs (Key Risk Events).

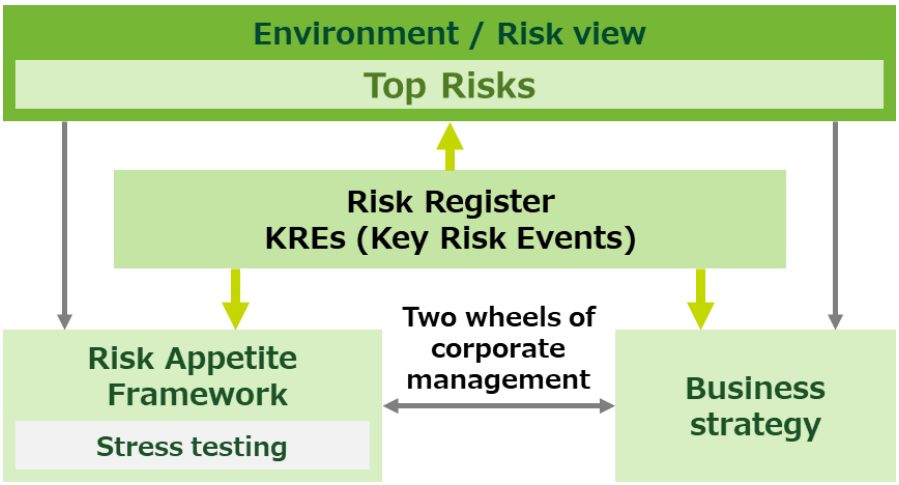
① Risk Appetite Framework

SMBC Group introduced "Risk Appetite Framework" as a framework for controlling Group-wide risks through clarifying the types and amounts of risk (Risk Appetite) to be taken or tolerated in order to expand earnings.

Risk Appetite Framework of SMBC Group, which is positioned as the two important wheels for business strategies and corporate management, is a management framework to ensure proper risk-taking, while sharing the awareness of the environment and risks surrounding the Group. In accordance with this framework, we identify the risks particularly material for the corporate management when formulating business strategies and business operation policies as "Top Risks."

SMBC Group positions climate change-related risk as one of the Top Risks. Risk Appetite Statement, which shows our position on risk taking and risk management in order to achieve our business plan, includes a description on the imperative requirement to curb the increase in climate change risks to achieve net zero targets through promoting engagement and portfolio control. Then, we determine Risk Appetite through conducting risk analysis as per stress tests based on risk scenarios, while taking into account the impact of risks when they materialize.

Figure 4-2 Risk Appetite Framework



■ Stress testing (scenario analysis)

In order to formulate and execute forward-looking business strategies, we strive to analyze and understand in advance the impact on the Group during economic and market fluctuations through stress tests.

Regarding climate change risks, we conduct scenario analysis using stress test methods for physical risks and transition risks,and estimate credit costs to expect the financial impact on SMBC in advance. For details of scenario analysis, refer to 3. Strategy, Awareness of risks associated with climate change and Scenario analysis in this chapter.

■ Risk Register

Each business unit formulates respective Risk Register with the aim of enhancing risk governance and strengthening risk ownership. Specifically, each business unit themselves identifies risks inherent in their operations through communication with the risk management department, assesses them, verifies the sufficiency of control measures, and reflects the results in respective business strategies.

Through this framework, when formulating business strategies, etc., climate change risks inherent in business strategies are identified and assessed, and control measures for them are considered, and necessary countermeasures are reflected in business strategies.

■ KREs (Key Risk Events)

For the purpose of grasping the signs of potential risks, we extract the external events that show rising risks including climate change matters (KREs); and we analyze and assess the possibility of similar incidents occurring at SMBC Group as well as the impact in that case. Thus, we use the results for sophisticating the risk management system of the Group.

■ Risk control for each sector

Within the Risk Appetite Framework, we will promote management and monitoring of credit balances in addition to GHG emissions and carbon intensity for the power and energy sectors. Regarding upstream oil and gas projects (development and production), we have adopted a control policy of curbing overseas projects to a certain level from the separate perspective of reducing the resource price fluctuation risk.

In the future, we will pursue portfolio management with an eye on gradual reduction of GHG emissions and carbon intensity toward the targets by 2030, while considering increase/decrease in GHG emissions from each project targeting the sectors where reduction targets are set for portfolio GHG emissions.

② Risk management by category

Climate change is involved in all risks affecting our Group. In each category, risk management is performed as follows.

■ Credit risk

Based on our mission and code of conduct, SMBC Group legislated the “Group Credit Policy” that clearly shows universal and basic principles, guidelines, and norms for credit operations. Then, as per the policy, we have grasped and managed credit risk for each facility as well as for the entire credit portfolio quantitatively and on an ongoing basis.

As for the credit risk management system, Group CRO formulates and manages basic policies for credit risk management every year based on the “Group-wide Basic Policy for Risk Management.” In addition, we have established the “Credit Risk Committee” as a consultative body for the purpose of ensuring a sound governance system for credit management.

With regard to climate change risks, we conduct scenario analysis to calculate the impact on the Group and help identify possible future risks. We are discussing how to improve the portfolio management, while referencing the risk levels by sector as assessed in a heatmap. Under such circumstances, as part of portfolio management, we monitor the outstanding balance of the power and energy sectors.

In addition, as part of the management of individual projects, as described on "Policies for specific businesses and sectors" in this chapter, we formulate and operate policies for the sectors and businesses that are likely to have an impact on climate change; and for some major customers in the sectors covered by this policy, we conduct due diligence using the “ESG Risk Summary Sheet,” a tool for grasping non-financial information. Such information is used as qualitative factors for judgment in credit management. Regarding this policy, we will proactively consider reviewing the target sectors and businesses based on the external environment.

Going forward, we will continue to further advance assessments of potential climate change risks in our portfolio while striving to enhance effective processes for controlling their impacts.

■ Market risk and liquidity risk

Based on the "Group-wide Basic Policy for Risk Management" decided by the Group Management Committee, we determine and manage important matters such as the basic policies for market risk and liquidity risk management and risk limits.

SMBC, the core bank of the Group, holds monthly ALM Committee meetings to report on the status of compliance with market risk and liquidity risk limits and deliberate the

ALM management policies. The independent Internal Audit Department regularly conducts internal audits to verify the risk management system.

In the future, we will analyze the impact of climate change risks on market risk and liquidity risk.

■ Operational risk

Having legislated the "Operational Risk Management Regulations" that prescribe the basic items for managing operational risks for the entire Group, we make it our basic principle to establish an effective framework for recognizing, assessing, controlling, and monitoring important risks as well as to establish incident treatment and emergency response systems, etc. Through such steps, we will endeavor to improve the operational risk management of the entire Group.

We also continue to work on operational risk quantification and ensuring Group-wide management effectiveness in light of the Basel regulatory framework. In our structure, Corporate Risk Management Dept. (CPRMD) generally supervises and manages operational risks, working together with departments in charge of managing clerical risks, system risks, tangible asset risks, legal risks, etc. respectively. CPRMD gathers and analyzes internal loss data that occurred, and gathers and analyzes KRIs (Key Risk Indicators); in addition, it periodically reports to Group CRO on the occurrence status of internal loss data, KRI status, scenario risk exposure in each scenario, risk reduction status, etc. This way, the effectiveness of risk management is being ensured.

In particular, climate change involves the following risks: that is, physical risks such as the inability to continue business due to damage from a disaster on the Head Office and branch offices; and transition risks such as fines and lawsuits due to the sales of products and services that do not meet the standards for climate change countermeasures or green finance. As the response to such risks, we are working on the formulation of a response manual assuming water disasters, the development of a system for analyzing and verifying risks, including risks related to climate change, when introducing products and services, etc. In addition, we collect internal loss data due to extreme weather events and use them to quantify operational risks. We also collect information on external incidents related to climate change, including fines and lawsuits, and such information are used to check the status of system improvements in SMBC Group and to call attention to the situation.

In the future, we will work to further understand the impact of climate change on operational risks, such as the impact of physical risks on business continuity and the possibility that climate change will lead to increase in compliance risks. Through such steps, we will upgrade our management systems and processes.

■ Reputational risk

As the basic principles for reputational risk, we established the "Reputational Risk Management Rules" that prescribe the basic matters for managing reputational risk. As per the rules, we clarify the operational system as well as the management structure, methods, rules, etc., aiming to realize highly effective risk management.

As the system for managing reputational risk, General Affairs Dept. and Public Relations Dept. centrally supervise the system for managing it in an appropriate manner, as per the “Group-wide Basic Policy for Risk Management,” covering from planning to operation, promotion, and support. We have also established an organ to discuss various measures to minimize reputational risk.

SMBC Group properly gathers information on situations in which reputational risk may materialize, and grasp/analyze the risk through assessing the degree of impact on corporate management and enterprise value when it materializes as well as the level of event occurrence probability. This way, we strive to control or try to reduce the risk, through considering countermeasures, etc. In addition, for high-risk and important events, after verifying and discussing countermeasures, we respond adequately such as reporting the contents of discussion to the Management Committee.

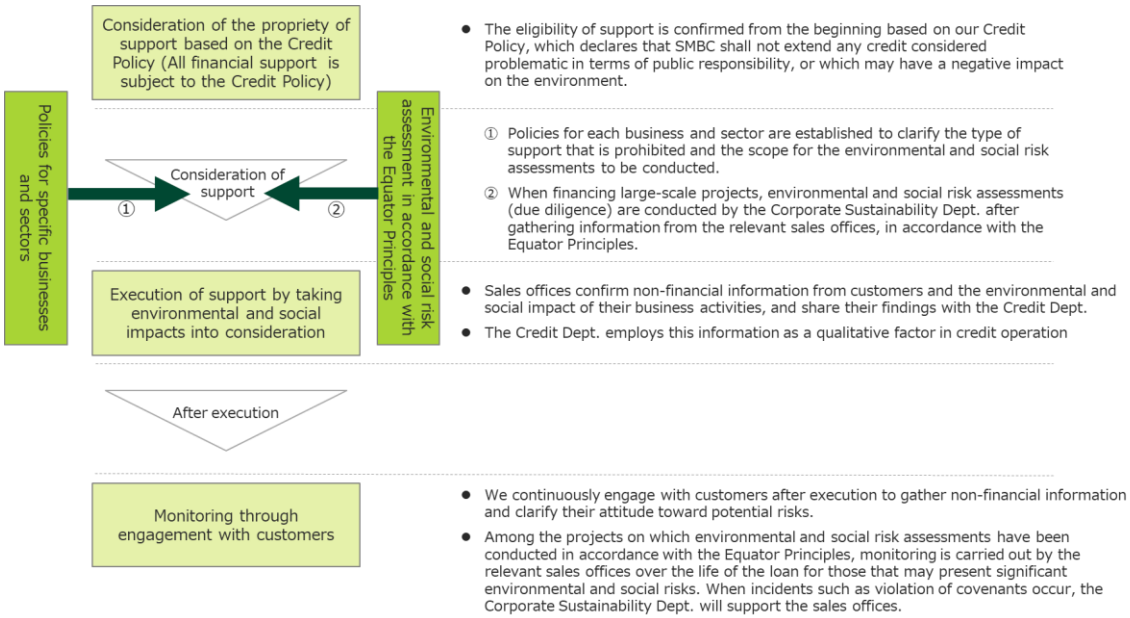
Looking forward, we will strive to further understand the impact of climate change risks on reputational risk and promote the sophistication of management systems and processes.

③ Due diligence

The "Group Credit Policy" of SMBC Group (a set of clear statements on the universal and fundamental visions, guidelines, norms, etc. for our credit operations) shows the basic principle that we do not extend any credit that might be detrimental from the viewpoints of public disciplines and social values; it also includes an imperative provision that we do not extend any credit that might have a significant negative impact on the earth’s environment.

As the core company of credit operations in the Group, SMBC ensures the management through monitoring, specifically as follows: grasp non-financial information of customers, which will be qualitatively used in credit management; and properly grasp environmental and social risks, through assessing environmental and social risks for each individual project.

Figure 4-3 Due diligence flow



■ Grasping non-financial information

SMBC comprehends both financial information and non-financial information (typified by ESG) on customers through engagements with them. This way, we recognize the impact of customers' business activities on the environment and society. Targeting certain major customers belonging to the sectors and businesses that may highly likely affect climate change, we grasp the status of their responses to environmental and social risks, including GHG emissions and climate change risks, using the “ESG Risk Summary Sheet.” We use such information as qualitative factors in judgment for credit management. This non-financial information is regularly updated through monitoring of the obligors.

By implementing these initiatives in parallel with environmental and social risk assessments based on the “Equator Principles,” we are conducting more sophisticated and extensive due diligence.

Through the collection of non-financial information, we deepen the quality of our engagement with customers regarding ESG-related risks, and actively help them promote initiatives aimed at careful considerations for the environment and society. If any concerned risk is identified, we will work together with customers to improve the situation.

■ Assessment of environmental and social risks

SMBC adopted the "Equator Principles," which are the environmental and social consideration criteria for private financial institutions, and we are applying them when considering extending a loan for a large-scale project that highly likely may have a

large impact on the environment and society. Particularly, Corporate Sustainability Dept. conducts assessments for the environmental and social risks through due diligence.

In addition, we ask each project-promoting company for efforts to treasure environmental and social considerations (typically, climate change and human rights) such as follows: respond to the TCFD recommendations; and respect FPIC (Free, Prior and Informed Consent) for local residents, etc.

④ Scenario analysis

As described in "3. Strategy," as the core company of SMBC Group, SMBC conducts scenario analysis on physical risks and transition risks. The significance of conducting scenario analysis is to build a foundation for formulating strategies for climate change risk management and net zero emissions, through visualizing the risk paths and risk exposures assumed at present. In order to reduce the calculated risk exposure, it is important to work together with customers to address climate change and promote mitigation measures, including support for transition.

In FY2022, in the analysis of physical risks in Japan, we conducted an analysis based on the SSP scenario used in the IPCC Sixth Assessment Report, and clarified the assumed risk exposure for each region. Regarding transition risks, we added the automobile and steel sectors to our analysis scope in addition to the conventional energy and power sectors. With the expansion of coverage scope, it has become possible to grasp more precise risk exposure data in relation to changes in the economy and society toward the realization of net zero emissions by 2050.

For climate change risks, it is extremely difficult to predict the potential impact due to the high degree of uncertainty about when they become apparent and the scale of risks. Under such circumstances, the current analysis is based on certain premises set for assumed natural disasters and analysis targets. Also, technology innovation expected to solve climate change issues and the ESG strategies, business model conversion, etc. expected of each company from now are not considered in the analysis. Therefore, we will continue to review and refine the analysis methods from now on.

Refer to "3. Strategy" for an overview of the analysis, and "Appendix 1" for additional analysis materials and data.

■ Physical risks

Due to the increase in extreme weather events caused by climate change, there may be a risk that the business of the customers of SMBC Group will be affected. SMBC is conducting scenario analysis targeting physical risks to assess the impact up to 2050.

The natural disasters caused by climate change are mostly accounted for by water disasters (e. g. floods; storms). Thus, we focus on water disasters among risk events

in this analysis. As for scenario, we are using RCP 2.6 scenario/SSP 1-2.6 scenario (2°C scenario), and RCP 8.5 scenario/SSP 5-8.5 scenario (4°C scenario), which are used by IPCC as their research base.

We implement scenario analysis, using the AI technology held by Jupiter Intelligence[11], a US startup company, as well as through collaboration with MS&AD InterRisk Research & Consulting. We quantitatively comprehend the risks in the event of a water disaster, through analyzing various satellite image data (e. g., climate-related data; topography data), while pursuing AI-assisted machine learning.

The analyses are conducted through the following three steps.

Step 1 Regarding the impact of a water disaster on the business performance, we calculate the credit costs expected to arise from the following two paths: value impairment of collateral items that the corporate banking of SMBC would face; and deterioration in obligor category due to the worsened financial conditions. In Japan, the hazard map (showing the areas that could be covered by flood water corresponding to the expected maximum precipitation) disclosed by MLIT is used to grasp the assumed inundation depth for each of the collateral items and corporate customer premises located on the map. Overseas, estimated inundation depth is calculated for each corporate customer by the AI analysis of Jupiter Intelligence. Based on the data of inundation depth, impact of collateral damage and deterioration of financial conditions will be analyzed.

Step 2 We set the flood occurrence probability by 2050 for each of the 2℃ scenario and the 4℃ scenario, by using the [12]data provided by MS&AD InterRisk Research & Consulting that are being generated in the flood risk assessment project they jointly purse with Tokyo University and Shibaura Institute of Technology.

Step 3 We calculate assumed credit costs by considering the credit costs computed in STEP 1 and the flood occurrence probability for each climate change scenario set in Step 2.

As a result of this analysis, the cumulative credit costs would be about JPY 67 to 85 billion by 2050. This means that additional credit costs would be only about JPY 2-3 billion as the average for a single fiscal year. When looking at the expected credit costs by region (Japan, the Americas, Europe/Middle East/Africa, Asia and Oceania), the

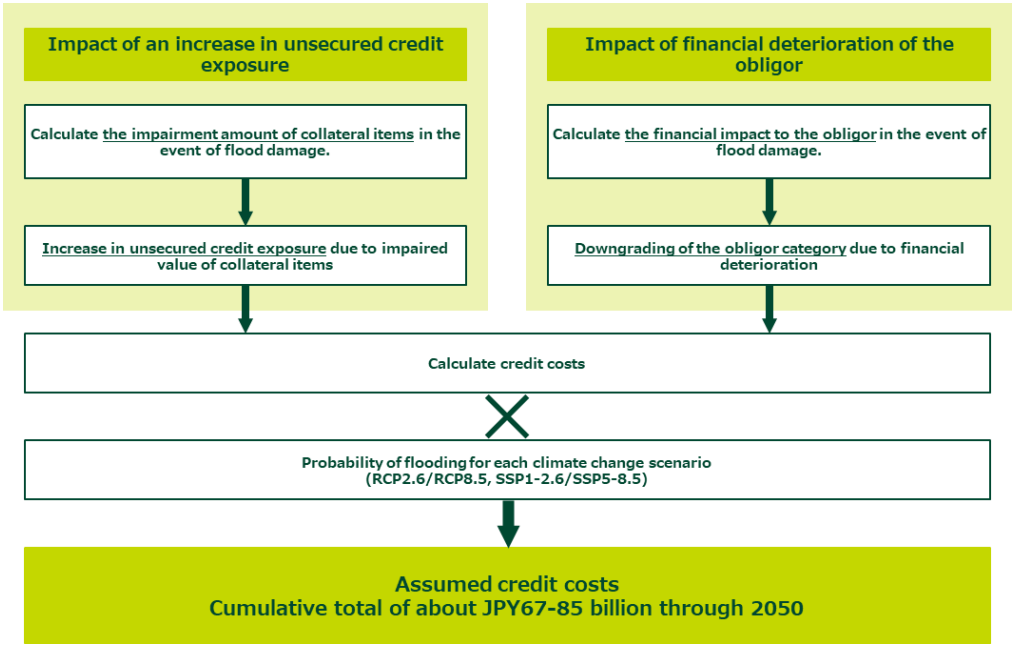
[11]It is a US startup company for climate change risk analysis that collects various data including communication satellite data and can predict the occurrence of natural disasters through AI analysis. Its staff includes a researcher from the Nobel Award winning IPCC (Intergovernmental Panel on Climate Change) and a concept maker of the Princeton Ocean Model, the world-famous marine circulation model, which is being used in 70 countries.

[12] Hirabayashi Y, Mahendran R, Koirala S, Konoshima L, Yamazaki D, Watanabe S, Kim H and Kanae S (2013) Global flood risk under climate change. Nat Clim Chang., 3(9), 816-821. doi:10.1038/nclimate1911.

amount of credit costs in Japan is larger than other regions reflecting the relative sizes of credit exposure. However, no overseas region shows conspicuously large value, which means the difference between regions is considered to be minimal.

Based on the above, we believe that the impact of climate change-induced water disaster risk on a single-year financial conditions of SMBC will be limited. In the future, we will work to improve our analysis methods, and if risks are expected to materialize, we will strive to reduce our own risks while urging our customers to take action.

Figure 4-4 Physical risks analysis process



■ Transition risks

Given the transition to a decarbonized society, there would be certain risks affecting the business of the customers of SMBC Group, such as changes in carbon price, prices and supply-demand environment of resources, production costs, etc. depending on the degree of suppression of GHG emissions, through the strengthening of policies and legal regulations, changes in industrial structure, etc. SMBC is conducting scenario analysis targeting transition risks to assess the impact up to 2050. We conduct analysis targeting the energy, power, automobile, and steel sectors, which are of large GHG emissions and expected to face a significant impact in the transition to a decarbonized society.

As for scenarios, in addition to the Current Policies scenario (3℃ scenario) of NGFS (Network for Greening the Financial System), we use the Net Zero 2050 scenario (1.5℃ scenario) of the same entity assuming the achievement of net zero emissions by 2050 as well as the Net-Zero Emissions by 2050 scenario (1.5 ℃ scenario) of IEA

(International Energy Agency).[13] The analysis is performed through the following two steps.

Step 1 Impact of risk factors assumed for each sector (see Figure 4-5) on performance is analyzed for each scenario.

Step 2 We calculate the credit costs assumed by 2050, by reflecting the analysis results in the stress test model that estimates the impact on credit risk.

As a result of this analysis, under the 1.5℃ scenario, credit costs would increase by JPY 2.5 to 28 billion as the average for a single fiscal year until 2050, group to the Current Policies scenario. The assumed financial impact is somewhat larger than physical risks, so we believe there is a possibility that reasonable amount of cost burden needs to be incurred in proceeding with the transition to net zero emissions.

Based on the risk awareness and sectoral knowledge obtained in the risk analysis, we set medium-term reduction targets for portfolio GHG emissions in the power and energy (oil and gas, coal) sectors. As described in "3. Strategy, " Net Zero Transition Plan " and "Risk management by category" in this chapter, we help customers pursue the transition through regular engagements with them, while implementing balance monitoring and portfolio management for each sector, to reduce transition risks through reduction of portfolio GHG emissions.

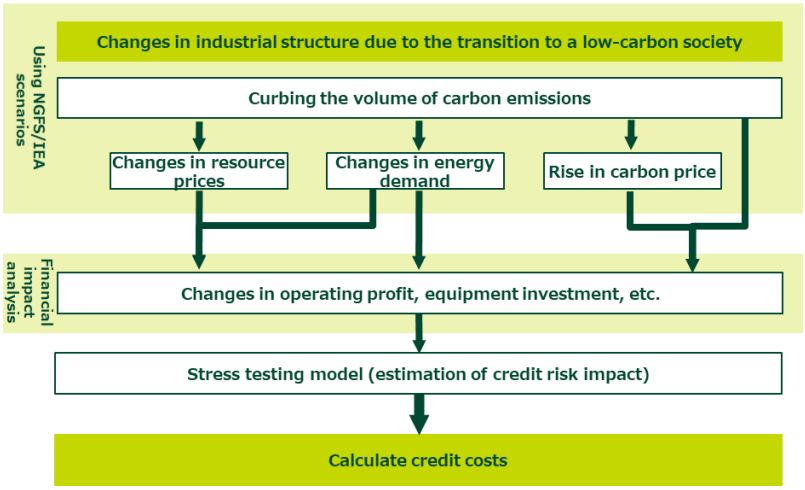
The carbon price is reflected in this analysis. When comparing the 1.5℃ scenarios used in the analysis this times for carbon price in 2050, there is a big difference: that is, 670USD/t-CO2 in the NGFS Net Zero 2050 scenario vs. 250USD/t-CO2 in the IEA Net-Zero Emissions by 2050 scenario. This is one of the reasons why the projected value of credit costs varies widely.

Looking forward, we will strive to reduce relevant risks through sophisticating the scenario analysis methods and helping our customers make efforts toward the transition to a decarbonized society.

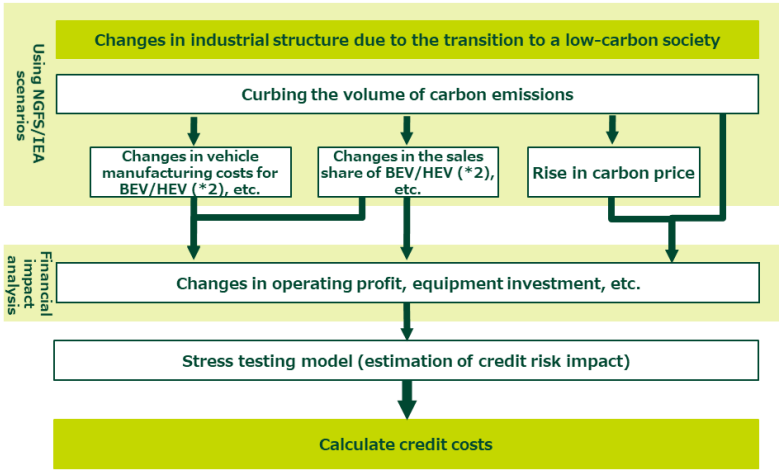
[13] This is a scenario consistent with the Paris Agreement, that limits the increase in global average temperature from pre-industrial revolution times to 2100 to 1.5°C through stringent climate change policies and technology innovation.

Figure 4-5 Transition risks analysis process

[Energy and power sectors]

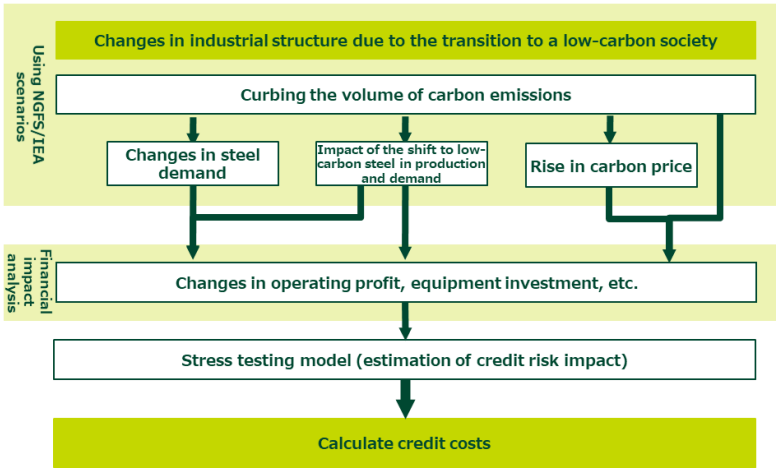


[Automobile sector] **(*1)**



(*1) For the automobile sector, analysis is conducted targeting OEMs (Original Equipment Manufacturers).
(*2) All powertrains are subject to analysis, such as internal combustion engine vehicles, hybrid electric vehicles, fuel cell electric vehicles, and battery electric vehicles.

[Steel sector]

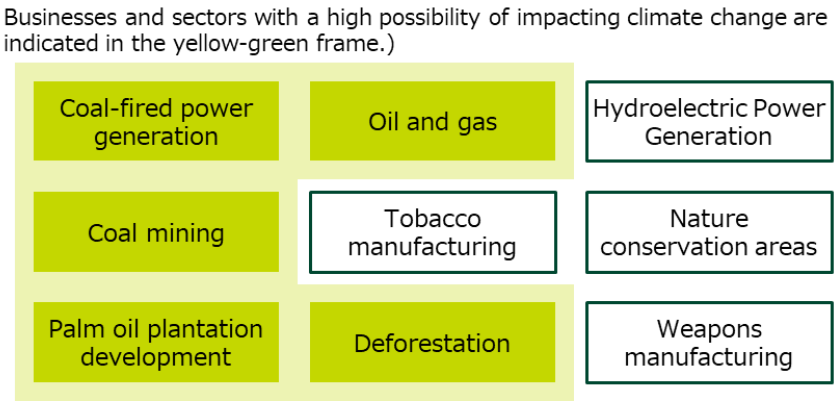


⑤ Policies for specific businesses and sectors

SMBC Group is introducing policies for specific businesses and sectors which are likely to have significant impact on the environment and society. These policies are rolled out to SMBC Group companies, including SMBC, SMBC Trust Bank, Sumitomo Mitsui Finance and Leasing Company and SMBC Nikko Securities, in line with their business models.[14]

For businesses and sectors considered to have high possibility of impact to climate change, SMBC Group has formulated policies for coal-fired power generation, oil and gas, coal mining, palm oil plantation development and deforestation as the following. Underlined contents are the modified points from our last TCFD Report, and we will apply the revised policy to our businesses from October 2022.[15]

Figure 4-6 Businesses and sectors that are likely to have significant impact on the environment and society



[14] SMBC Group website: Management of Environmental Risks (https://www.smfg.co.jp/sustainability/materiality/environment/risk/)

[15] Policy to not provide support for new and expansion of thermal coal mining projects, as well as for new development and expansion or infrastructure dedicated to above-mentioned projects have been applied since May 2022.

Coal-fired power generation	**Policy (partial amendment made from previous policy)** Support for newly planned coal-fired power plants and the expansion of existing plants are not provided. In addition, among companies whose main businesses are coal-fired power generation, we will not provide support for those that do not have any existing transactions, including but not limited to lending, with SMBC Group. **Understanding of the Business/Sector** SMBC Group expects our customers to establish and publicly announce long-term strategies aimed at realizing a carbon neutral business model and other initiatives to address climate change. Moreover, SMBC Group will support the activities of our customers contributing to the transition toward and realization of a decarbonized society.
Oil and gas	**Policy** The scope of environmental and social risk assessment that takes into account the Equator Principles is expanded to the following businesses and sectors when we consider lending. After identifying and evaluating environmental and social risks, appropriate measures are considered. **Understanding of the Business/Sector** Oil and gas will continue to be an important source of energy, and we actively consider measures that contribute to the transition to a decarbonized society. On the other hand, as the transition to a decarbonized society progresses, it is important to consider the risk of stranded assets that will cause the value of the assets owned to decline in the future, measures to reduce the environmental impact associated with development, and give proper consideration to the residents of the development area. ■ **Oil sand** Oil sand (tar sand) has relatively high carbon intensity and large environmental impacts are associated with its development. As such, SMBC Group conducts environmental and social risk assessments, paying close attention to soil and water pollution caused by wastewater, deforestation, and efforts to protect biodiversity and indigenous communities, when we consider lending. ■ **Shale oil and shale gas** During shale oil and shale gas development, the use of hydraulic fracturing methods is assumed to cause groundwater contamination and induce earthquakes. SMBC Group carefully monitors whether appropriate mitigation measures have been implemented for these issues, and then we conduct environmental and social risk assessments when we consider lending. ■ **Oil and Gas Mining Projects in the Arctic** The Arctic Circle (an area north of the 66°33' latitude) is home to rare ecosystems and indigenous people with a unique culture. For mining projects in this region, SMBC Group conducts environmental and social risk assessments, playing close attention not only to environmental considerations but also to measures to protect biodiversity and indigenous communities, when we consider lending. ■ **Oil and gas pipelines** Pipelines are expected to have a wide range of environmental impacts due to oil spills and deforestation, as well as social impacts on indigenous communities, not only at the time of construction but also when completed. SMBC Group carefully monitors whether appropriate mitigation measures have been implemented for these issues, and then we conduct environmental and social risk assessments when we consider lending.
Coal mining	**Policy (partial amendment made from previous policy)** Support for newly planned and the expansion of thermal coal mining projects, as well as those using the Mountain Top Removal (MTR) method are not provided. Support for newly planned and the expansion of infrastructure developments that are dedicated to above-mentioned projects are not provided either. When considering lending for coal mining projects other than the above, the scope of environmental and social risk assessment that takes into account the Equator Principles is to be expanded, and environmental and social risks are identified and evaluated. In addition, among companies whose main businesses are thermal coal mining or linked infrastructure development, we will not provide support for those that do not have any existing transactions, including but not limited to lending, with SMBC Group. **Understanding of the Business/Sector** In addition to the risks of stranded assets associated with the transition to a decarbonized society, it is important to consider human rights with respect to the elimination of illegal labor and child labor in coal mines and biodiversity issues associated with mining. SMBC Group expects our customers to establish and publicly announce long-term strategies aimed at realizing a carbon neutral business model and other initiatives to address climate change. Moreover, SMBC Group will support the activities of our customers contributing to the transition toward and realization of a decarbonized society.

Palm oil plantation development	**Policy (partial amendment made from previous policy)** For palm oil plantation development projects, whether they have been certified by the Roundtable on Sustainable Palm Oil (RSPO), which is given for palm oil produced with environmental and social consideration, is confirmed. Support is only provided after confirming that forest resources and biodiversity are protected when new plantations are developed and that there are no human rights violations, such as child labor. For those customers that have not yet been certified, obtaining certification is encouraged and supported, and submission of a plan to acquire certification is required. For customers who have no plans to acquire RSPO certification, we encourage their acquirement, and require actions according to the same standard as RSPO certification. In addition, we will require our business partners to publicly declare their compliance with NDPE (No Deforestation, No Peat, No Exploitation). We also encourage them to enhance their supply chain management and improve traceability to obtain RSPO certification and comply with NDPE through their supply chain.
Deforestation	**Policy (partial amendment made from previous policy)** For any business involving deforestation, we provide them with support only after having confirmed as per the laws and regulations of respective country that there is no illegal deforestation, burning, nor illegal labor. Among them, especially regarding large-scale farm (*1) development projects, we will require them to publicly declare their compliance with NDPE. *1 Farm of 10,000 ha or more (e. g. business aimed at cultivating soybeans, natural rubber, coffee, etc., or using it as a grazing land for livestock) When supporting forest management projects (*2) in countries other than high-income OECD member countries, we will require them to obtain FSC (Forest Stewardship Council) certification or PEFC (Programme for the Endorsement of Forest Certification Scheme) certification, and to declare NDPE compliance. If certification is yet to be acquired, we encourage and support their acquirement, and request them to submit a plan to acquire certification. We also encourage them to enhance their supply chain management and improve traceability to obtain such certification and comply with NDPE through their supply chain. *2 A forest management business refers to business that nurtures and manages forests, which involves cutting down forest trees for the purpose of harvesting and selling them. This policy does not apply to businesses that only cut trees (thinning) for the purpose of forest conservation without the purpose of harvesting and selling them. In addition, when considering financing for any large-scale project not limited to the above projects, we will surely conduct environmental and social risk assessments as per the Equator Principles, while closely monitoring the applicant's stance on the following points: impact on virgin forests and ecosystems; mitigation measures for the foregoing; inclusion of peatland development; considerations for workers and local residents, etc.

[Column] Responses to the Poseidon Principles

The Poseidon Principles represent an international framework established in 2019 by major financial institutions as an effort to address climate change issues for the shipping industry. The International Maritime Organization (IMO) sets emission reduction targets with the aim of achieving zero GHG emissions as early as possible within the 21st century. The Poseidon Principles were initiated under the initiative of private financial institutions, considering the reduction targets set by the IMO.

Sumitomo Mitsui Finance and Leasing (SMFL) and SMBC signed the Principles in December 2020 and January 2021, respectively. As a member of the financial institutions participating in the Principles, SMBC and SMFL will annually measure and disclose GHG emissions from the targeted ships of ship finance based on the common framework prescribed. SMBC and SMFL made their first disclosures both in FY2021. The degree of alignment (Portfolio Alignment Score) for the ship loan portfolio of SMBC with the GHG emission reduction goal of the IMO is 6.6% (as of December 2021). The indicator for Sumitomo Mitsui Finance and Leasing is -4.0%.

SMBC Group will fulfill its obligation to disclose information required by the Principles regarding ship finance, which is one of the important sectors in responses to climate change.

5. Metrics and Targets

As listed in “Chapter 3: Strategy” and “Chapter 4: Risk management,” SMBC Group is applying a variety of metrics regarding GHG emissions, exposure, etc. for the purposes of measuring/controlling climate change risks/opportunities, complying with the Paris Agreement, and establishing a path to achieve the net zero target. These metrics are regularly reported to the Management Committee, the Corporate Sustainability Committee, and the Board of the Directors while also being reflected in SMBC Group’s business strategies and overseen.

Figure 5-1 Key climate change-related metrics and targets at SMBC Group

Strategy	Metrics（KPI）	FY2020 Results	FY2021 Results	Targets
Reduce Operational GHG Emissions	GHG emissions volume of SMBC Group	**139.5** kt-CO2e	**176.1** kt-CO2e	**Net zero by 2030**
Reduce Portfolio GHG Emissions	GHG emissions from loan/investment portfolio	–	–	**Net zero by 2050**
	Power	**332** g-CO2e/kWh	–	FY2030 **138 -195** gCO2e/kWh
	Oil and Gas	**56.9** Mt-CO2e	–	FY2030 **-12～-29%**
	Coal	**13.9** Mt-CO2e	–	FY2030 **-37～-60%**
Promote Business Addressing Decarbonization	Sustainable finance	**JPY 2.8 trillion**	**JPY 5.4 trillion**	Total of JPY 30 trillion by 2030
	Of which is green finance	**JPY 2.5 trillion**	**JPY 5.0** trillion	Total of JPY 20 trillion by 2030
Enhance Risk Management	Loan balance for coal-fired power generation (project finance)	**JPY 300 billion**	Project finance **JPY 260 billion**	FY2030 **-50%**
	Loan balance for coal-fired power generation (facility linked corporate finance)	–	**JPY 80 billion**	FY2040 **Zero balance**

(1) GHG emissions at SMBC Group

We must reduce GHG emissions if we are to reach the goals set out under the Paris Agreement and realize a decarbonized society. In addition, the implementation of climate change related initiatives is becoming one of the key criteria in assessing a corporation's value. Thus, delays in reducing GHG emissions resulting from one's own business activities could lead to reputational risk. Furthermore, maintaining power procurement via traditional methods that rely on GHG emission-heavy thermal power generation entails volatility risk of costs arising from changes in public policy and fluctuations in costs of natural resource. As such, from the perspective of stabilizing energy procurement cost, it is also desirable to switch to emission free, renewable energy-based power sources.

SMBC Group has set a target of our business activities generating net zero GHG emissions (Scope1,2) by 2030. From FY2022, we significantly expanded the number of domestic and overseas SMBC Group entities subject to GHG emission data collection so that we may obtain a detailed understanding of our GHG emissions in line with the GHG Protocol, and we are carrying out GHG reduction initiatives at a greater number of SMBC Group offices. All of this is being carried out while maintaining consistency with the scope of required financial reporting

In order to realize further reductions going forward, we at SMBC Group are planning to introduce mega solar power generation facilities and offsite corporate PPA, in addition to promoting energy conservation and switching to utility contracts in which electricity is derived from renewable energy via the use of non-fossil certificates and implement energy.

Furthermore, the success of reaching the annual targets (of the above multiyear targets) will be combined with our success in achieving other ESG related targets and an evaluation by a leading ESG rating company to have, at a maximum, a ±10% impact on annual performance-based compensation.

Figure 5-2 GHG emissions at SMBC Group

New boundary : SMBC Group consolidated basis (domestic/overseas) *

Category	FY2021*	Target
Scope1 (direct emissions)	18.8	Net zero by 2030
Scope2 (indirect emissions)	157.3	
Scope1 and 2 Total	**176.1**	

* Scope3 emissions (business trips) for FY2021:11.4kt-CO_2e

Old boundary : Key SMBC Group domestic companies*

Category	FY2019	FY2020	FY2021*
Scope1 (direct emissions)	13.5	11.2	11.3
Scope2 (indirect emissions)	126.1	128.3	111.3
Scope1 and 2 Total	**139.6**	**139.5**	**122.6**

* Scope of aggregation
  - New boundary : Overseas and domestic offices of consolidated subsidiaries belonging to Sumitomo Mitsui Financial Group and Sumitomo Mitsui Banking Corporation (excludes equity method affiliates)
  - Old boundary : Domestic offices of Sumitomo Mitsui Financial Group and its 9 key subsidiaries (Sumitomo Mitsui Banking Corporation, SMBC Trust Bank, Sumitomo Mitsui Finance & Leasing, SMBC Nikko Securities, Sumitomo Mitsui Card Company, SMBC Financial Service, SMBC Consumer Finance, The Japan Research Institute, Sumitomo Mitsui DS Asset Management Company)

（2）Portfolio GHG emissions

GHG emissions resulting from investments and loans makes up a substantial portion of a financial institution's carbon footprint. Setting a target, and reducing such emissions are all key components of complying with the Paris Agreement and realizing net zero emissions. In addition, as mentioned earlier, the assets making up financial institutions' portfolios are facing transition risks, resulting in the risk of increased credit costs in line with the transition to a decarbonized society.

In order to consist with the Paris Agreement and reduce transition risks, SMBC Group has set medium-term GHG emission reduction targets for SMBC's loans and investments to customers in the power, oil and gas, and coal sectors given the size of SMBC's portfolio and the high GHG emissions generated by these sectors.

■ Our mindset with regard to setting reduction targets

We have set a target range of GHG emission reductions based on IEA's SDS Scenario and NZE Scenario which will allow us to achieve the 2℃ target and come closer to the 1.5℃ target. As we proceed with efforts to realize a decarbonized society, we must pay careful attention to each country's unique circumstances. I believe that there are multiple paths to a decarbonized society given the numerous factors/variables involved, including, but not limited to, geographical/economic factors and the rate of innovation. As such, we will strive to realize the target ranges we have set for 2030 while carefully determining the most realistic pathway to realizing a decarbonized society.

Furthermore, for the power sector, our target has been set for carbon intensity rather than absolute emissions. The reason for this being that a target which reflects efficiency is better fitted given that we anticipate an increase in the overall volume of power generation going forward as we expect to see electricity play an even greater role in industry in line with economic growth, the switch from gasoline fueled automobiles to EVs, etc. As we progress towards a decarbonized society, it is expected that demand for energy from renewable sources will increase, causing such sources to gradually replace oil and gas. Thus, we believe that pursuing efficiency and reducing carbon intensity will lead to the reduction of absolute GHG emissions.

For details regarding the calculation method and target-setting, please refer to "Appendix 2. Investment and Loan Portfolio: GHG Emissions"

Figure 5-3 GHG emissions reduction track record and targets for our investment and loan portfolio

Sector	Target	KPI	Results (FY2020)	Medium-Term Reduction Targets	Reference Scenarios
Power	Power Generation Scope1	Carbon Intensity	**332** g-CO2e/kWh	FY2030 **138 -195** gCO2e/kWh	IEA/SDS・NZE
O&G	Upstream Production Scope1,2,3	Absolute Emissions	**56.9** Mt-CO2e*	FY2030 **-12～-29%** (vs FY2020)	
Coal	Upstream Production Scope1,2,3	Absolute Emissions	**13.9** Mt-CO2e*	FY2030 **-37～-60%** (vs FY2020)	

* Figures released in the May press release and Annual Report have been revised due to the refinement of the calculation process

Apart from the above calculation and target-setting, Sumitomo Mitsui DS Asset Management, which conducts asset management operations, measures Portfolio GHG emissions (Scope 1, 2), etc. for domestic equities, foreign equities, domestic bonds, and foreign bonds it manages.[16]

（3）Sustainable finance execution amounts

In order to realize a decarbonized society, large scale capital investments and innovations will be required to drastically cut GHG emission levels. We expect a wide range of business sectors, especially the energy sector, to make additional investments to this effect. As such, the transition holds many opportunities for financial institutions due to increased demand for funds and new financial solutions.

Given such a backdrop, SMBC Group has committed to executing JPY 30 trillion of sustainable finance valued (of which JPY 20 trillion is green finance) from FY2020 to FY2029. Given our robust presence in the market sector, SMBC Group is building a

[16] Sumitomo Mitsui DS Asset Management Company, Limited Website（https://www.smd-am.co.jp/corporate/vision/fiduciary/03/）

steady track record in green finance and other sustainable finance areas. For details, please refer to “Chapter 3 Strategy – Figure 3-12.”

Furthermore, the success of reaching the annual targets (of the above multiyear targets) will be combined with our success in achieving other ESG related targets and an evaluation by a leading ESG rating company to have, at a maximum, a ±10% impact on annual performance-based compensation.

Figure 5-4 Finance execution amount and target

Category	Total (from FY2020)	FY2021	Target (2030)
Sustainable Finance	**JPY 8.2** trillion	**JPY 5.4** trillion	JPY 30 trillion
Of which Green Finance	**JPY 7.5** trillion	**JPY5.0** trillion	JPY 20 trillion

* Companies included in the calculation process: Sumitomo Mitsui Banking Corporation (green finance, etc.), SMBC Nikko Securities (green bonds, etc.), Sumitomo Mitsui Finance & Leasing (renewable energy/energy saving leasing, etc.)

（4）Loan balance for coal-fired power generation

In order to ensure that our business model adheres to the principles established in the Paris Agreement and to reduce transition risks, SMBC Group created a medium-term reduction targets for GHG emissions generated by our investment and loan portfolio. Specifically speaking, SMBC Group has established a phase-out strategy for loans targeting coal-fired power generation projects, and we aim to reach a zero balance by 2040.

Figure 5-5 Loan balance for coal-fired power generation

	FY2020	FY2021	Target
Loan balance for coal-fired power generation	–	JPY 810 billion	–
Loan balance* (project finance)	JPY 300 billion	JPY 260 billion	**FY2030:-50%** (vs FY2020) **FY2040: Zero balance**
Loan balance* (facility linked corporate finance)	–	JPY 80 billion	**FY2040: Zero balance**

* Does not include financing that contributes to the decarbonized society. Target is vs FY2020.

6. Moving Forward

With efforts to realize a decarbonized society accelerating on a global basis, SMBC Group has created a transition plan and systemized our various targets and actions aimed at achieving net zero emissions. Going forward, we will focus on minimizing risks and maximizing growth opportunities as we carry out a variety of efforts in line with our translation plan. We are committed to contributing to the creation of a society in which today's generation can enjoy economic prosperity and well-being. We will strive to achieve our net zero targets by combating climate change so that we can pass on such a world to future generations.

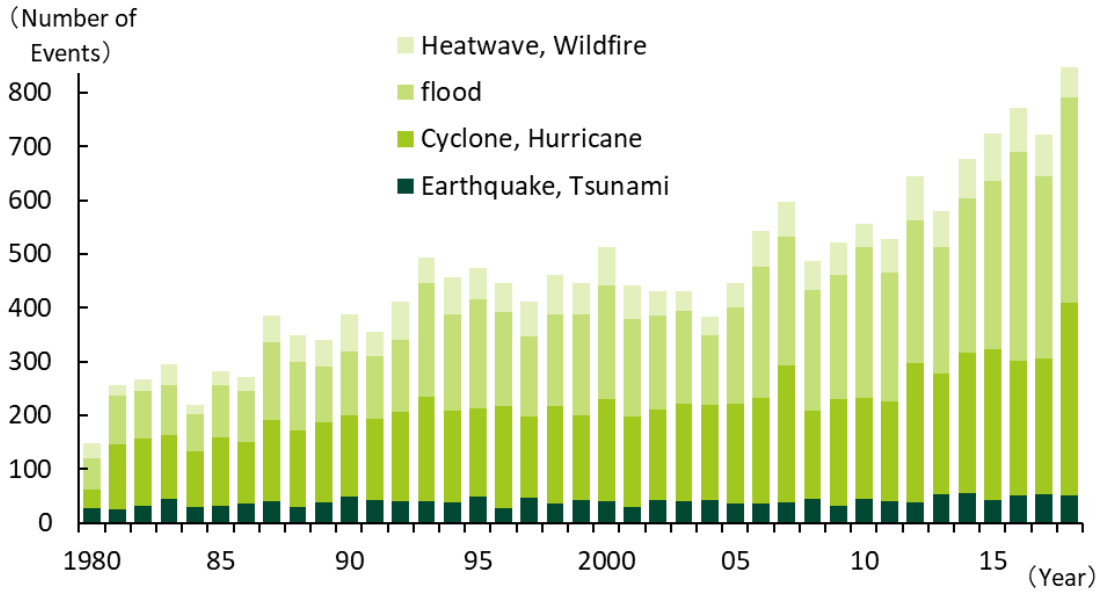
Having said this, a rushed approach to decarbonization could disrupt the steady supply of energy and also become a factor that negatively impacts economic growth. In addition, if individuals and corporations are not able to adapt to sudden changes in social and industrial structures that arise as we strive towards a decarbonized world, there are concerns that unemployment, human rights, and other social issues asides from climate change will arise. Given that a number of uncertainties exist in terms of the impact of our transition to a decarbonized society, the transition needs to be undertaken in a careful and coordinated manner, so society is not placed under excessive stress.

In such an environment, SMBC Group is engaging in climate change related efforts based on our vision and understanding. We will also engage in constructive communications with our various stakeholders to create mutual understanding on the strategies and outlook on which customers are striving to achieve net zero emissions. Based on such communications, we will demonstrate leadership in addressing climate change issues by supporting our customers' efforts to transition to a decarbonized society. Going forward, we will continue to provide consistent and transparent disclosures to our stakeholders in line with the TCFD Recommendations.

Appendix 1. Scenario Analysis

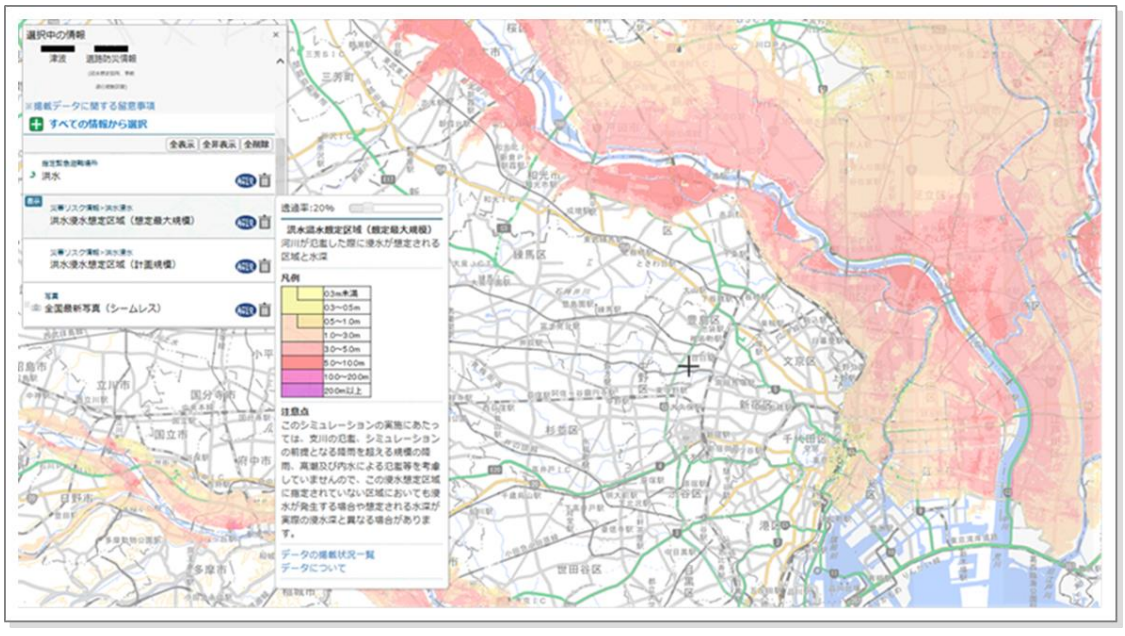
① Physical risks: Supplementary materials and data

Figure App-1 Incidence of natural disasters



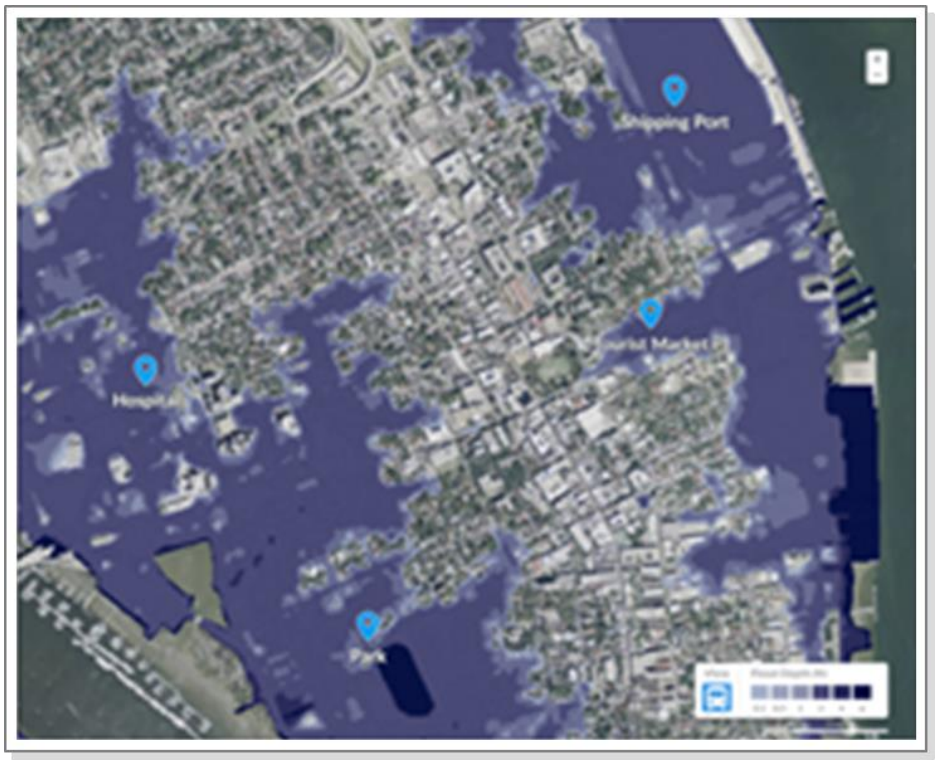
(Source) Munich Reinsurance Company

Figure App-2 Water disaster hazard map



(Source) Ministry of Land, Infrastructure, Transport and Tourism

Figure App-3 Jupiter Intelligence: Analysis of satellite images

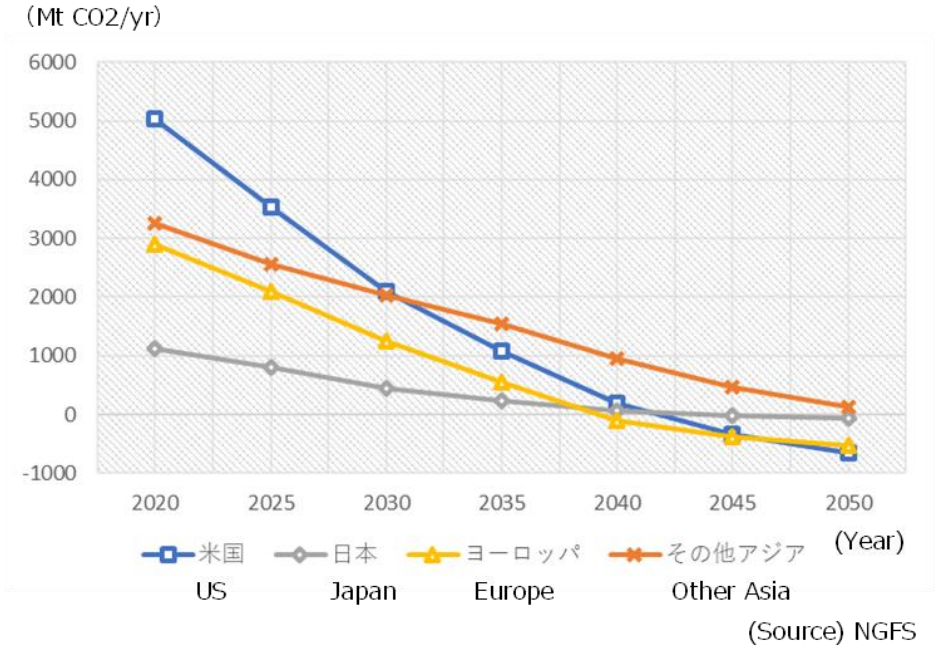


(Source) Jupiter Intelligence

② Transition risks: Supplementary materials and data

Figure App-4 Transition of CO2 emissions

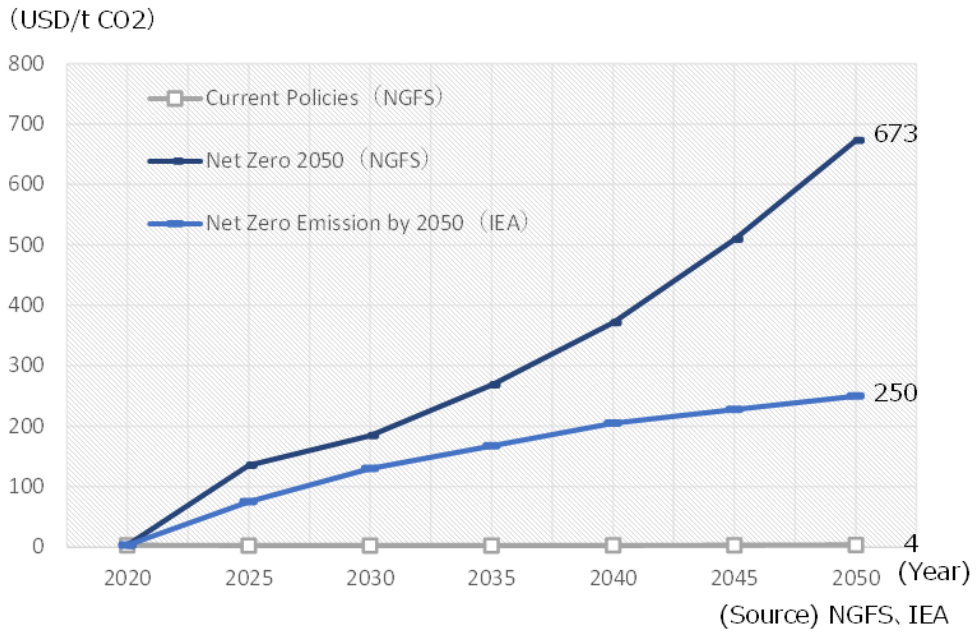
Transition in CO2 emissions in the NGFS “Net Zero 2050 scenario”



(Source) NGFS

Figure App-5 Transition of carbon price

Transition of carbon price in each of the NGFS scenarios and IEA “Net Zero Emissions scenario”



(Source) NGFS、IEA

Appendix 2. Portfolio GHG emissions

(1) Introduction

It is said that portfolio GHG emissions account for a large proportion of the GHG emissions of financial institutions. Thus, it is important to set goals for portfolio GHG emissions and promote reduction, in order to ensure compliance with the Paris Agreement and achieve net zero emissions. In this section, we have sorted out the details of our current approach at SMBC Group, concerning calculation of portfolio GHG emissions and goal setting.

For calculating and setting goals, SMBC Group refers to the PCAF Standard, TCFD Measuring Portfolio Alignment: Technical Supplement, etc., to develop our approach. Calculation and disclosure of portfolio GHG emissions are in a development phase, and guidelines and standards are being established right now.

SMBC Group participates in the initiatives related to calculation and goal setting, where we follow up on the latest trends in methodologies, and make recommendations for refinement. Based on these trends and the latest climate science, we will update our calculation and goal setting methods as appropriate and build a scientific, transparent, and comparable approach.

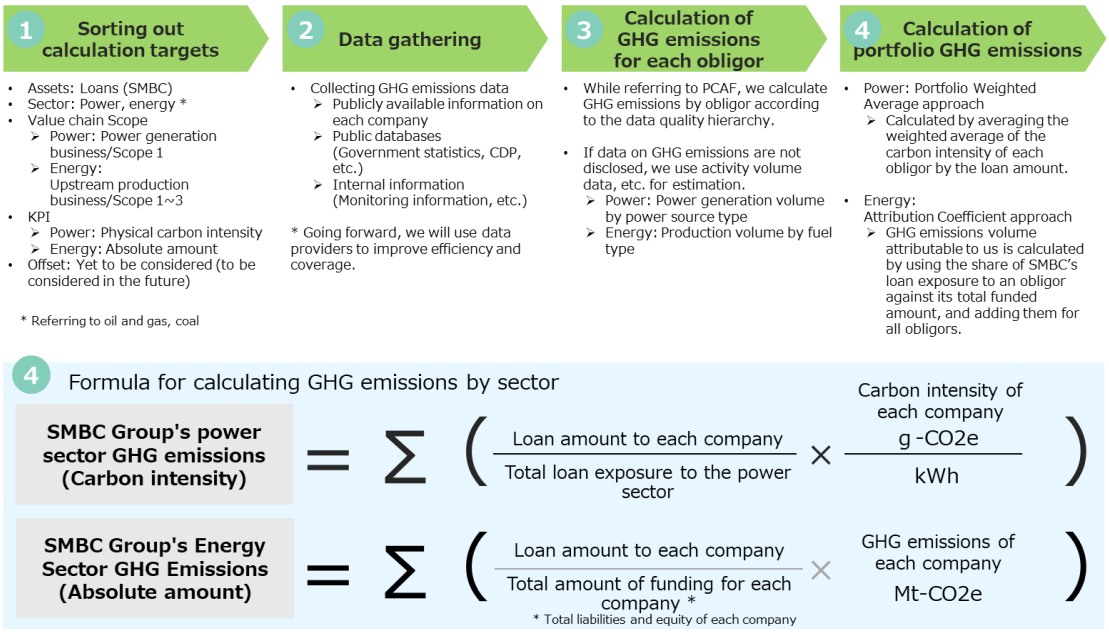
Overview of SMBC Group's approach for calculating portfolio GHG emissions and setting goals

Category		Power sector	Energy (oil and gas, coal) sector
Calculation approach for portfolio GHG emissions			
Calculation target	assets	・Loans extended by SMBC (the core company of SMBC Group) and its leading subsidiaries.	
	Sector	・Obligors who fall under the power sector (GICS basis) and have a power generation business	Obligors who fall under the oil and gas, coal sector (GICS basis) and have an upstream production business
	Value chain /Scope	・Scope 1 related to power generation business	・Scope 1 and 2 related to upstream production business and Scope 3 (Category 11) * Including methane leakage
	KPI	・Physical carbon intensity (g-CO2e/kWh)	・Absolute emission (Mt-CO2e)
	Offset	・Not consider this at this time. (It will be considered when GFANZ/NZBA guidelines will have been established.)	
Data collection		・Information disclosed by each company / public databases / internal information (interviews) / data providers	
Calculation of GHG emissions by obligor		・In the estimation, also use power generation amount and installed capacity as needed, in accordance with the data quality hierarchy, while referencing PCAF.	・In the estimation, also use production volume and sales revenue as needed, in accordance with the data quality hierarchy, while referencing PCAF.
Calculation of portfolio GHG emissions		・Calculate portfolio carbon intensity using the portfolio weighted average approach.	・Calculate portfolio GHG emissions (absolute volume) using the attribution factor approach.
Reduction targets for portfolio GHG emissions			
Medium-term reduction targets (FY2030)		・138-195g/kWh	・Oil and gas: 12-29% reduction (compared to FY2020) ・Coal: 37-60% reduction (compared to FY2020)
Consistency with the Paris Agreement		・Set a goal for each sector with reference to the IEA scenarios (SDS/NZE).	
Periodic review		・Consider the needs for revision during the period of the next MMP (FY2023-2025).	
Approval and review			
Governance for reduction targets		・Ensure reviews by the Management Committee and Board of Directors (+ Sustainability Committee).	
Third-party assurance		・Preparations for acquisition are underway (considering acquisition in FY2023).	

(2) Calculation approach for portfolio GHG emissions

This section will describe the main process for calculating portfolio GHG emissions in SMBC Group. The Group's calculation process consists mainly of four steps.

Figure App-6 Main process for calculating portfolio GHG emissions



① Sorting out calculation targets

■ Target assets

SMBC Group is committed to achieving net zero emissions across its investment and loan portfolios. However, calculation of portfolio GHG emissions is an initiative in the development stage, and guidelines and standards are under development.

As a first step, SMBC Group is calculating portfolio GHG emissions and setting reduction targets concerning the lending business, the core business of the Group, targeting SMBC and its major consolidated subsidiaries, that account for the majority of credit exposure.[17][18]

[17] Loans (corporate finance and project finance) are targeted.

[18] In FY2021, the total loan exposure of SMFG (consolidated) was JPY 90.8 trillion, and that of SMBC (consolidated) was JPY 92.5 trillion. For details of the financial statements of SMFG and SMBC, refer to respective financial reports (MOF-submitted annual securities reports, SEC filings, etc.).

■ Target sectors

Towards decarbonization, each industry has its own unique challenges, and it is assumed that the paths to decarbonization and the speed of reduction will differ. The approach of setting industry-specific emission paths based on climate science is called the "Sectoral Decarbonization Approach (SDA)" and it is widely used, including by companies participating in SBT. Financial institutions have diverse portfolios and it is necessary to engage with customers of many industries according to their circumstances. Thus, SMBC Group has adopted SDA when calculating portfolio GHG emissions and setting reduction targets.

SMBC Group joined the NZBA in October 2021. NZBA guidelines recommend that the nine carbon-intensive sectors[19] be preferentially covered in the calculation of portfolio GHG emissions and goal setting. Of these nine sectors, we selected power, oil and gas, and coal sectors as the first-step targets for us to calculate portfolio GHG emissions and set reduction targets, considering GHG emissions, climate change risks, loan exposure, etc.

As shown in Figure App-7, we identified specific obligors subject to calculation based on GICS for each sector. When selecting the targets, we also considered the perspective of target value chain (whether it has a power generation business or an upstream production business), which will be described later.

Figure App-7 Target sectors for calculation and goal setting

Target sectors	**GICS**
Power	・ Electric Utilities ・ Multi-Utilities ・ Independent Power Producers & Energy Traders ・ Renewable Electricity
Oil and gas	・ Integrated Oil and Gas ・ Oil and Gas Exploration & Production
Coal	・ Coal & Consumable Fuels

■ Target value chain/Scope

When considering the lifecycle GHG emissions of the power sector, most of them come from the power generation business, not the transmission and distribution business nor the retail business, and it is the power generation assets that will be exposed to the risk of stranded assets. Thus, it is important to focus on the power generation business. Therefore, for the power sector, in order to measure GHG

[19] Power, oil and gas, coal, steel, transportation, real estate, aluminum, cement, agriculture

emissions related to power generation business, we treat the direct emissions from power generation (Scope 1) of each obligor customer as the calculation target.[20]

In the oil and gas, coal sectors as well, when considering lifecycle GHG emissions, most of them are the GHG emissions (including methane leakage) in the upstream mining and production businesses and the GHG emissions when using fossil fuels. Therefore, in the energy sector, in order to measure GHG emissions related to upstream production business and related to uses of the products, we put the following subject to the calculation: direct and indirect emissions relating to fossil fuel production at each obligor customer (Scope 1/2); and supply chain emissions related to product uses (Scope 3, Category 11).[21]

Offset credits are not taken into consideration in the current calculation. Global discussions are underway on the net-zero goals and the associated offset credits. SMBC Group are participating members of such initiatives as NZBA, TSVCM[22], Carbonplace, etc. While learning the global standards being established through them, we will consider how to use offset credits for SMBC Group as well as for our obligor customers.

- **KPI**

In the power sector, total demand is expected to increase in the process of decarbonization due to the following: continued economic growth in developing countries; and progress of electrification in the industries, such as the shift from gasoline vehicles to electric vehicles. The IEA/NZE scenario (1.5°C scenario) describes the following picture: the power sector will reduce GHG emissions, though increasing the total power generation volume toward 2050 centered on renewable energy. Based on these characteristics, for the process of transition, we set the carbon intensity (g-CO2e/kWh) required for power generation as a measurement indicator to emphasize efficiency in addition to the absolute volume of GHG.

On the other hand, with regard to fossil fuels, it is necessary for decarbonization to reduce consumption itself by promoting electrification and utilization of alternatives such as hydrogen. In the IEA/NZE scenario as well, the ratio of fossil fuels in primary energy sources will decrease, with the intention to keep reducing consumption itself. Based on these characteristics, for the oil and gas, coal sectors, we set the absolute amount (Mt-CO2e), which indicates direct GHG emissions, as a measurement indicator.

[20] Among the target companies per GICS, we put the companies with power generation business (5% or more in revenue) subject to the calculation.

[21] Among the target companies per GICS, companies with upstream production business (5% or more in revenue) are included in the calculation.

[22] Taskforce on Scaling Voluntary Carbon Markets: A private sector-led initiative launched in September 2020 by the United Nations Special Envoy on Climate Action and Finance Mark Carney. It aims to expand an effective voluntary carbon trading market (carbon credit trading market) to achieve the goals of the Paris Agreement.

② Data collection

When calculating portfolio GHG emissions for a financial institution, data on the emissions and related data of each company (investee or loan obligor) are necessary. We gather the data on emissions and activity volume (power generation volume) for each company as per the following: using the information grasped by SMBC when extending a loan or at the time of monitoring; using the information disclosed by obligor company (integrated reports, etc.); and conducting surveys on public information (electric power survey statistics, etc.).

As part of our efforts to gather information related to ESG, we are collecting information using the "ESG Risk Summary Sheet," and are considering further utilization of data providers to improve the efficiency of data gathering.

Figure App-8 Main data sources

Category	Data source examples
GHG emissions -related data	✓ Integrated reports and various ESG reports ✓ (Project finance) Monitoring reports ✓ CDP
Activity volume data	✓ Integrated reports and various ESG reports ✓ Public databases of each country ✓ Financial reports (MOF-submitted annual securities reports, annual reports, etc.) ✓ (Project finance) Monitoring reports ✓ Internal data
Financial data	✓ Financial reports (MOF-submitted annual securities reports, annual reports, etc.) ✓ Internal data ✓ Data vendors

③ Calculation of GHG emissions by obligor

When calculating portfolio GHG emissions of a financial institution, the emissions data of each of the investee companies and loan obligors are required. However, not all companies disclose their GHG emissions, and the level of disclosures differs depending on the company size, industry, and region. This is a challenge to be addressed, when intending to calculate GHG emissions of financial institutions.

In light of this situation, the PCAF Standard defines data quality scores, and it is recommended that calculations be made according to these scores. In the calculation of this time, we calculated portfolio GHG emissions, by preferentially using the emission

data based on disclosed information, or if unable to obtain such data, by estimating[23] emissions, while referencing the above data quality scores. Specifically, as mentioned earlier, for the power sector, we calculated the carbon intensity required for power generation for each obligor; and for the energy sector, we calculated the absolute volume required in the upstream production business and its supply chain for each obligor.

Figure App-9 Table of data quality scores by PCAF

Category	Example	Score
Reported emissions	Emissions data authenticated by an independent third-party	1
	Unauthenticated emissions data	2
Physical activity-based emissions	Estimated emissions volume based on energy consumption volume, etc.	
	Estimated emissions volume based on production volume data, etc.	3
Economic activity-based emissions	Estimated emissions volume based on each company's sales data	4
	Estimated emissions volume based on each company's asset data	5

High

Low

(Source: Compiled by the company using sources from the PCAF Standard)

④ Calculation of portfolio GHG emissions

Portfolio GHG emissions by sector in SMBC Group were calculated based on GHG emissions of each obligor. The primary methods for determining portfolio-level emissions are as follows: an approach recommended by PACTA[24], etc., where weighted average of portfolio GHG emissions of financial institutions is used; and an approach recommended by PCAF, that uses attribution coefficients based on enterprise value (EVIC).

We used the portfolio-weighted average approach in calculating carbon intensity for the power sector and used the attribution factor approach for the energy sector, to calculate portfolio-level emissions (portfolio GHG emissions). The current calculation results using the above processes are shown below. Going forward, we will aim to further raise the data quality scores and coverage ratios through using competent data providers and pursuing customer engagements.

[23]From the perspective of proper portfolio management, in order to grasp the potential of emissions, we estimated the data for the projects under construction with project finance as well, using the assumed power generation volume and production volume.

[24]Paris Agreement Capital Transition Assessment: This is a tool to assess climate change transition risks, developed by 2 Degrees Investing Initiative (2DII), a climate-related think tank.

Figure App-10 Calculation results of portfolio GHG emissions

Sector	GHG emissions	Data quality score	Coverage ratio *4
Power	332g-CO2e/kWh*1	Scope1 : 2.5	90%
Oil and gas	56.9Mt-CO2e*2 ✓ Scope1/2 : 8.0 ✓ Scope3 : 48.9*3	Scope1/2 : 1.9 Scope3 : 2.6	85%
Coal	13.9Mt-CO2e*2 ✓ Scope1/2 : 1.4 ✓ Scope3 : 12.5*3	Scope1/2 : 1.9 Scope3 : 2.1	90%

*1 Calculation of the absolute amount is under consideration.
*2 Due to refinement of calculations, the figures have been revised from those disclosed in the May press releases and integrated reports.
*3 Scope3 Category11: Use of sold product
*4 By sector; loan amount basis

(3) Reduction targets for portfolio GHG emissions

① Reference scenarios

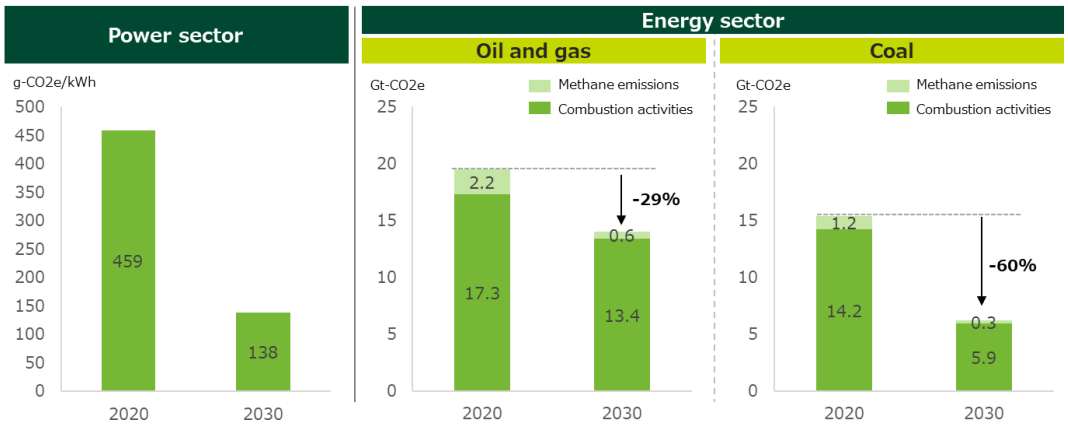
SMBC Group joined the NZBA and is committed to achieving net zero GHG emissions across its investment and loan portfolios by 2050, in line with the goals of the Paris Agreement. To the end, we are endeavoring to expand the target scope to other sectors (from oil and gas sector +) and set adequate medium-term reduction targets.

When setting goals, NZBA recommends the following: any eligible scenario should be consistent with the temperature targets of the Paris Agreement and assume no overshoot; and scientific scenarios published by credible and widely recognized agencies should be used. NZBA refers to the IEA-published SDS/NZE scenarios as eligible scenario examples. SMBC Group references these scenarios when setting our targets.

The NZE scenario shows the data on carbon intensity (g-CO2e/kWh) at the time of power generation for the power sector. It describes a pathway to lower it to 138g-CO2e/kWh by 2030. When setting our goals, we referenced this carbon intensity.

On the other hand, for the energy sector, it shows GHG emissions from each of fossil fuel types, describing the following pathways: reducing oil and gas by about 29%; and reducing coal by about 60% by 2030 compared to 2020. When setting our goals, we referenced these reduction rates.

Figure App-11 Transition in GHG emissions in the power, oil and gas, coal sectors under the IEA/NZE scenario



(Source) Compiled by SMBC Group from IEA World Energy Outlook 2021

② Medium-term reduction targets

In line with the goals of the Paris Agreement, the Group is committed to achieving net zero GHG emissions across its entire investment and loan portfolios by 2050, and has set medium-term reduction targets for each sector to achieve the objective.

Based on the idea that, as a global financial institution, we aim to achieve the 1.5℃ target after achieving a level well below the 2℃ target while supporting customers' transitions and technology innovations toward decarbonization, we set the goals in the form of a range.

Achieving the 1.5℃ target is a long-term objective that is commonly shared by both SMBC Group and our customers. Thus, we will repeat the engagements with the customers and jointly promote the initiatives towards decarbonization.

Figure App-12 Portfolio GHG emissions and reduction targets

Sector	Target scope	KPI	Actual results (FY2020)	Medium-term reduction targets	Reference scenarios
Power	Power generation business Scope1	Physical carbon intensity	332 gCO2e/kWh	2030 138 -195 gCO2e/kWh	IEA/SDS・NZE
Oil and gas	Upstream production business Scope1,2,3	Absolute amount	56.9 MtCO2e*	2030 -12~29% (vs. FY2020)	
Coal	Upstream production business Scope1,2,3	Absolute amount	13.9 MtCO2e*	2030 -37~60% (vs. FY2020)	

* Due to refinement of calculations, the figures have been revised from those disclosed in the May press releases and integrated reports.

(4) Approval and review

① Governance for reduction targets and transition plan

NZBA recommends that the reduction targets be approved by the management and reviewed by the highest governance body. As described in "2. Governance," SMBC Group has clarified the responsibilities for sustainability in terms of both supervision and execution and established relevant systems. Under this system, reduction targets and transition plan are appropriately supervised and reflected in business execution. When formulating reduction targets and transition plan, they are deliberated in the Management Committee, and Group CSuO will report on them to the Board of Directors.

Looking forward, we will ensure adequate disclosure on the progress of transition plan and the performance against goals, etc. and periodically review the reduction targets and transition plan based on the opinions of relevant committees.

② Regular review of medium-term reduction targets

NZBA recommends that the targets be reviewed periodically (at least every five years) to ensure alignment with the latest climate science. SMBC Group plans to review the transition plan to achieve net zero emissions in conjunction with the mid-term management plan. Thus, we will review the medium-term reduction targets as necessary, while considering the latest status of climate science (such as at IPCC).

Note that the above calculation results and goals are based on the current methods. Therefore, we might review the goals if the target scope or calculation method is changed due to future sophistication, or if the figures of the reference year are changed.

③ Third-party assurance

NZBA recommends obtaining an independent assurance for the reduction targets and progress reports on them. SMBC Group is already obtaining a third-party assurance for its in-house GHG emissions. In addition, for its portfolio GHG emissions as well, we are making preparations to aim to obtain a third-party guarantee within FY2023.