

Mizuho Avoided Emissions Focus Report 2025

Unlocking a Sustainable Future with Avoided Emissions

Mizuho Financial Group

Mizuho Bank

Mizuho Trust & Banking

Mizuho Securities

Mizuho Research & Technologies

Mizuho-DL Financial Technology

Asset Management One

October 2025



Innovating today. Transforming tomorrow.

By providing financial and non-financial solutions that utilize the avoided emissions, Mizuho will proactively support clients and other stakeholders in creating positive impact and promoting transition, thereby contributing to the realization of a sustainable society.

In response to client feedback that there was a lack of documentation and reports on **Avoided Emissions** compiled from the perspective of financial institutions, Mizuho published the "Avoided Emissions Focus Report" in October last year, which received a much greater response than expected. We would like to express our sincere gratitude for the many kind comments we received, which conveyed everyone's enthusiasm and positive attitude toward avoided emissions.

Since the publication of our report last year, there have been growing global moves to disseminate and expand the use of avoided emissions. As noted in the current report, in July this year, World Business Council for Sustainable Development (WBCSD), one of the convening bodies of the GHG Protocol, published the second edition of its avoided emissions guidance, and various industry-specific guidance documents are also being developed. Going forward, it is expected that the use of avoided emissions will become even more widespread among companies and financial institutions. In addition, according to a proprietary survey by Mizuho, disclosure of avoided emissions by Japanese companies has increased significantly compared to the previous year, reaffirming that awareness of the importance of avoided emissions is steadily spreading in Japan.

However, the issue remains that avoided emissions have only been calculated and disclosed and have not been fully utilized for actual financing purposes. Mizuho takes this issue seriously and we have been carefully considering our next steps to further accelerate the dissemination and expansion in use of avoided emissions.

One of Mizuho's solutions to such challenges is **Avoided Emissions Impact Finance**, which was launched in October this year and is detailed in this report.

We also continue to take on new challenges to disseminate and expand the use of avoided emissions, such as considering utilization of avoided emissions as a metric to evaluate clients' positive impacts and transitions.

As a comprehensive financial group with diverse functions including commercial banking, trust banking, securities (investment banking), asset management, and research and consulting, Mizuho has the unique strength of being able to propose the best solutions to client needs and social issues across the entire group and is strategically working on the avoided emissions area on a similar groupwide basis. Furthermore, we keep considering what we can and should do presently to ensure that avoided emissions become an essential metric for society in five or ten years, and to contribute to creating positive impact and promoting transition. Based on Mizuho's corporate Purpose to "Proactively innovate together with our clients for a prosperous and sustainable future," we will continue to work with clients and other stakeholders to contribute to the realization of a sustainable society by providing financial and non-financial solutions that utilize avoided emissions.



31st October 2025

A handwritten signature in black ink, appearing to read "Y. Ushikubo".

Mizuho Financial Group, Inc.
Group Chief Sustainability Officer (Group CSuO)

Executive summary

» Global trends in avoided emissions: p. 3

- Avoided emissions are a metric that supplements GHG emissions analyses and can be used to assess climate-related opportunities, positive impact, transition, etc.
- Currently, there are moves to revise various standards and guidance on avoided emissions, and further progress can be expected in efforts by companies and financial institutions regarding avoided emissions.
- Platforms for calculating and disclosing avoided emissions are being established, primarily in Europe and Japan, and industry-specific guidance is also being developed.

» Disclosure of avoided emissions by Japanese companies (FY2024): p. 23

- In FY2024, 120 Japanese companies in the TOPIX 500 and 60 other companies disclosed their avoided emissions. Compared to FY2023, the number of disclosing companies increased by 32% in the TOPIX 500 and by 48% overall, a significant increase even relative to recent years, indicating that the disclosure of avoided emissions by Japanese companies has gathered pace.

» Role of financial institutions in promoting sustainability and utilization of avoided emissions: p. 31

- The formulation of standards and guidance for sustainability information, as well as its calculation and disclosure, has been discussed mainly from the perspective of secondary market investment (the viewpoint of investors), and it appears that high data quality and comparability are often required for metrics. While secondary market investments contribute to increasing corporate value through enhancing valuation and encouraging the efforts of investee companies through engagement and proxy voting, they do not directly lead to corporate financing.
- On the other hand, in the area of loans and primary market investments (the viewpoint of banks and securities companies), it is possible to flexibly disclose information on a solution/project basis according to the diverse business characteristics of each company, with an emphasis on evaluating individual factors. Therefore, it is easy to use avoided emissions for sustainable finance, which leads to financing and impact creation.

» Mizuho's achievements in avoided emissions area: p. 36

- Mizuho has established a model of collaboration within the group that contributes to expanding the use of avoided emissions and is providing comprehensive support to clients through calculation and disclosure of avoided emissions, financing, and other solutions.
- Mizuho has extensive experience in sustainable finance and consulting related to avoided emissions. In October of this year, we utilized our expertise in avoided emissions to develop an original financing product **Avoided Emissions Impact Finance** which is specifically focused on avoided emissions.

» Future potential of avoided emissions and Mizuho's initiatives: p. 48

- Avoided emissions are one of the metrics suitable for assessing clients' contribution to decarbonization and their ability to seize climate-related opportunities, and they can be used in a variety of financial and non-financial solutions.
- Mizuho will fully leverage its track record and expertise in avoided emissions, as well as its management resources across the group, and work in collaboration with various stakeholders to further disseminate and promote the use of avoided emissions and expand financial and non-financial solutions that utilize avoided emissions.

Mizuho's Strengths

- ✓ Identity that has contributed to the development of industry and business since its foundation
- ✓ Expertise on industry, environment, society and technology
- ✓ Liaison with diverse stakeholders and comprehensive financial capabilities to support them

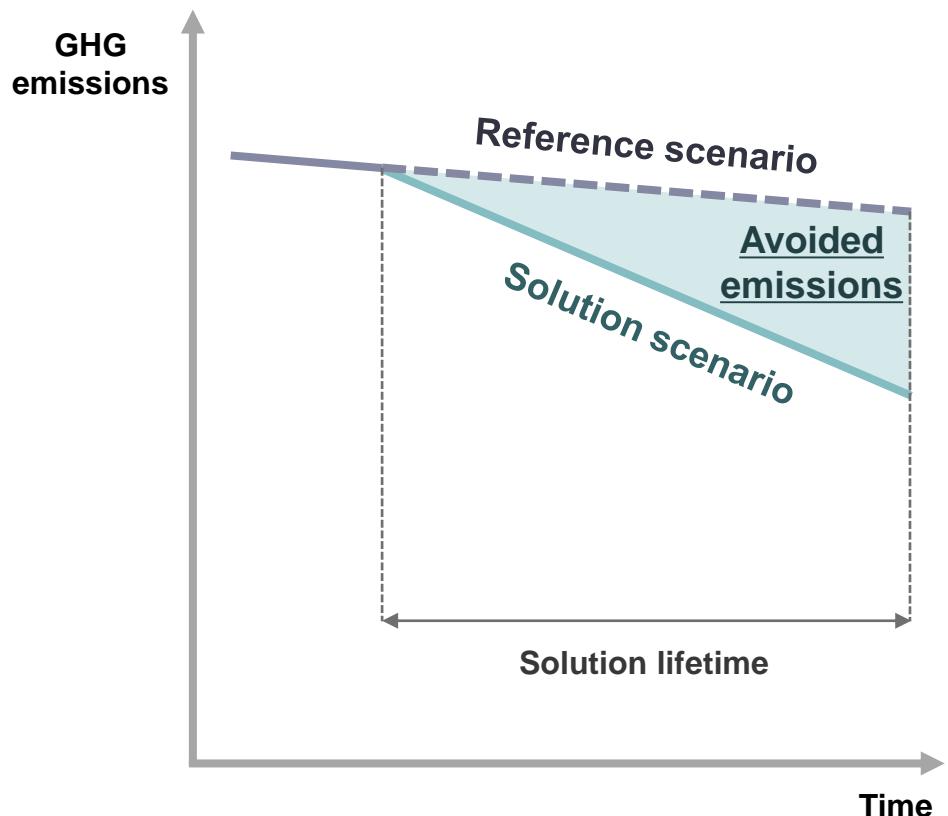


1. Global trends in avoided emissions

- **Avoided emissions (AE) are a metric that quantifies and evaluates the contribution to the reduction of greenhouse gas (GHG) in society from the provision of solutions (products, services, etc.) by companies.**

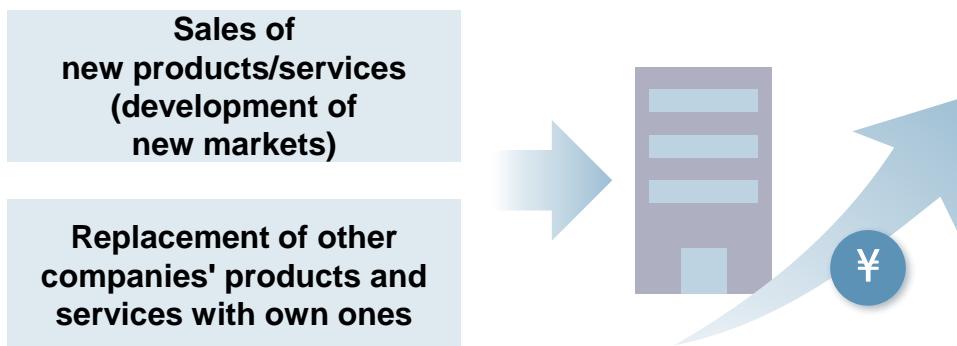
Definition of avoided emissions

- If the GHG emissions of the “**reference scenario**” without a solution (products, services, technologies, and projects for which avoided emissions are calculated) are greater than the GHG emissions of the “**solution scenario**” with a solution, the estimated difference in GHG emissions over the entire life cycle between the reference scenario and the solution scenario is called the “**Avoided Emissions**.”
- Therefore, avoided emissions can also be considered to be the reduction in overall societal GHG emissions (impact) resulting from the introduction of solutions.
- Avoided emissions enabled by solution providers, such as companies, are also calculated in terms of the reduction of direct emissions by solution users.
- The reference scenario represents the event or state that is most likely to occur when there is no solution for which the avoided emissions are calculated, and it is the scenario to be compared with the solution scenario when calculating the avoided emissions enabled by the solution. A reference scenario is sometimes referred to as a counterfactual scenario or baseline.



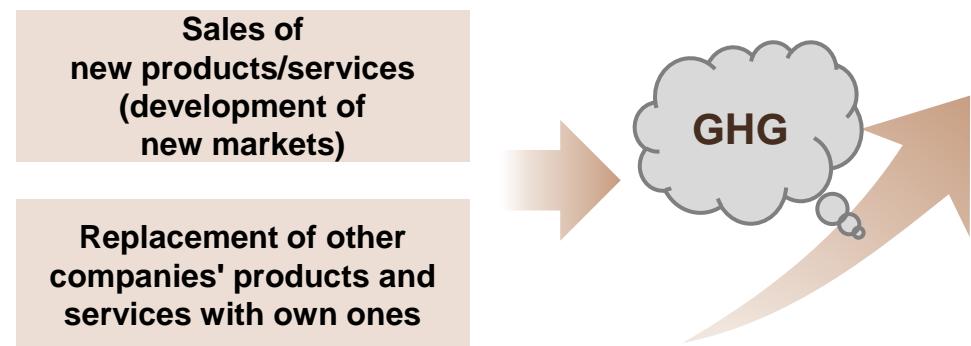
- GHG emissions are a metric that often increases when corporate production and sales volumes increase.
- They are a good metric for assessing climate-related risks, but there are challenges when using them to evaluate climate-related opportunities.

Changes in financial accounting due to increased sales of products/services



If sales of the company's products and services increase, the company's sales, profits, cash flow, corporate value, etc. can be expected to increase.

Changes in carbon accounting due to increased sales of products/services

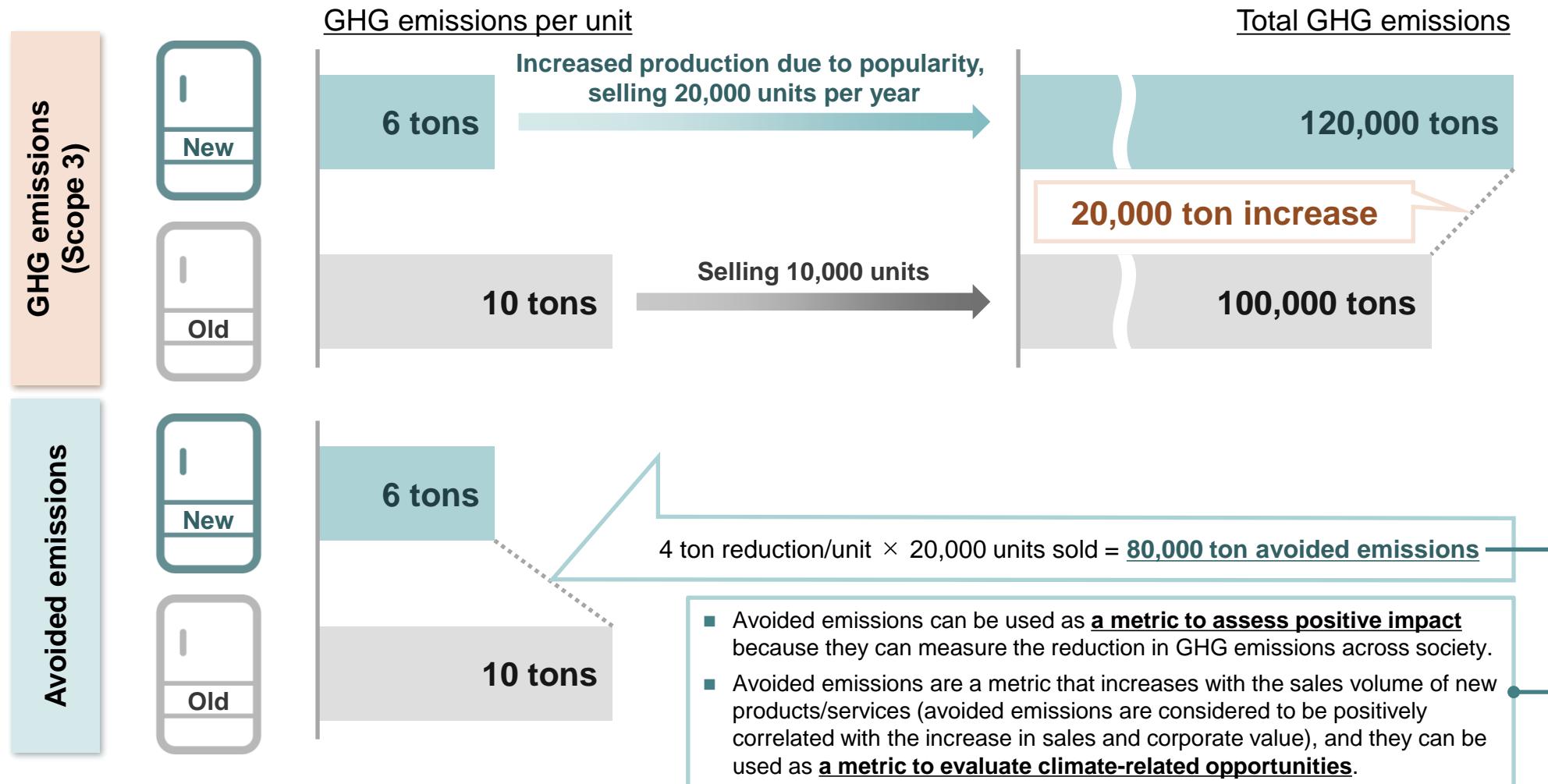


If sales of the company's products and services increase, its own GHG emissions often increase.

- An increase in sales of a company's products and services or an increase in its market share would normally enhance a corporate value. Therefore, analyzing responses to climate change only in terms of GHG emissions may not lead to an appropriate corporate assessment for financial institutions.
- While GHG emissions are an appropriate metric for assessing climate-related risks such as the introduction of carbon taxes and emissions trading, there are challenges in using them to assess climate-related opportunities (that enhance corporate value).

- AE is a metric with a different concept from GHG emissions (Scope 1, 2, 3) and cannot be deducted from them.
- Nevertheless, the contribution of companies to emissions reduction can be evaluated using AE.

Comparison of GHG emissions (Scope 3) and avoided emissions



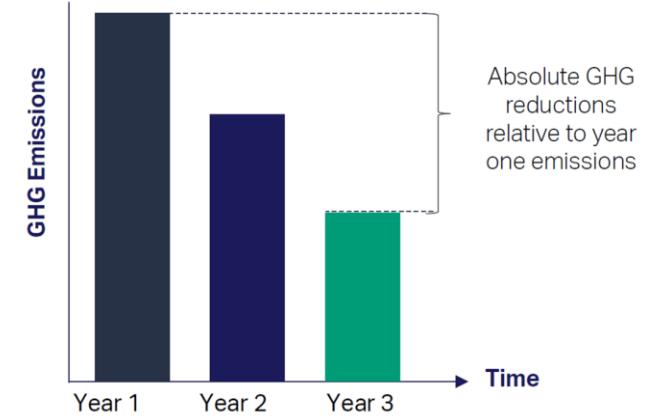
- The concept of GHG emissions (Scope 1, 2, 3) in inventory accounting is different from that of AE in intervention accounting.

Difference between inventory accounting (GHG emissions) and intervention accounting (avoided emissions)

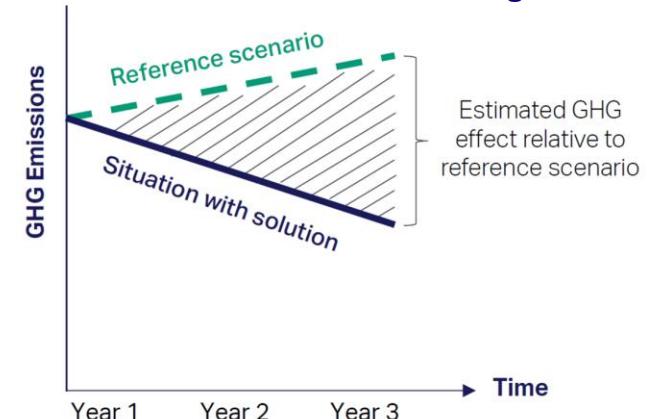
Category	Inventory accounting (GHG emissions)	Intervention accounting (Avoided emissions)
Scope	GHG emissions from a company's activities	GHG emissions in society
Principle	An assessment of annual absolute emissions from a company and its value chain	An assessment of the GHG impact of a solution provided by a company, compared to what would have occurred if the solution wasn't used (e.g., standard market solution)
Time	An assessment is made between two chronological points in time	An assessment is also made between two points in time, but made by comparing the solution's use to a hypothetical situation within the same time period
Reference	GHG emissions reductions are quantified against actual absolute emissions in a historical base year	Avoided emissions are quantified against a reference scenario
Certainty	The reference (historical base year) is real and accurate	The reference scenario is model-based, fictional and thus not verifiable per se
Reality	Emissions reductions compare the variation of a company's reported emissions over time	Avoided emissions compare the climate impact of a solution (what has happened or is expected to happen) and a reference scenario (what would have occurred without the solution)

Difference between inventory and intervention

Inventory accounting

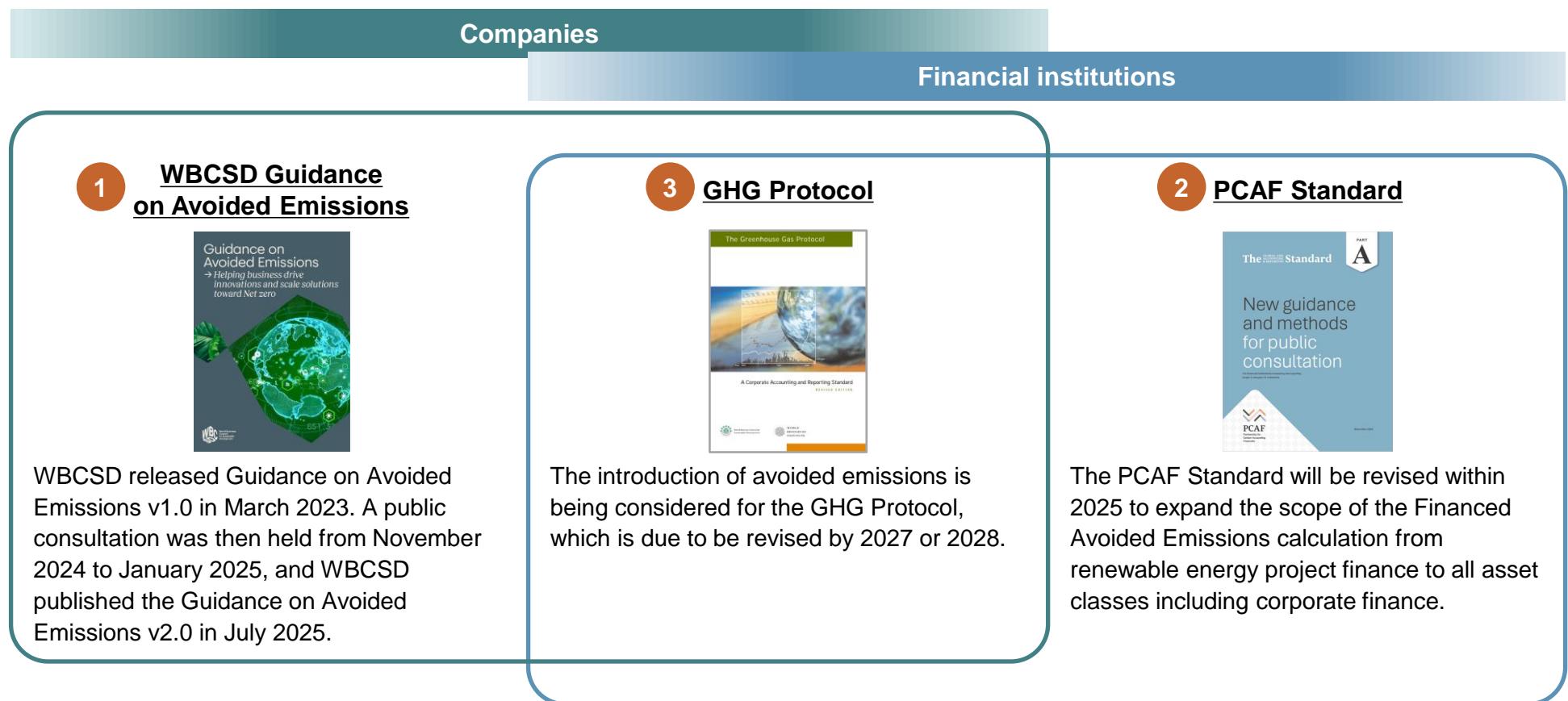


Intervention accounting



- WBCSD Guidance on AE, PCAF Standard, and GHG Protocol will be revised between 2025 and 2028.
- Following this, initiatives by companies and financial institutions regarding AE will progress and accelerate.

Revision of standards and guidance on avoided emissions



Companies are expected to advance and accelerate the calculation and disclosure of avoided emissions.
Financial institutions are expected to develop and accelerate engagement on avoided emissions and the provision of financial and non-financial solutions to companies.

- In July 2025, WBCSD published its Guidance on AE v2.0 reflecting feedback from a number of stakeholders.
- Many more specific examples and detailed explanations have been added relative to v1.0, providing more practical guidance on AE.

Key additions to Guidance on Avoided Emissions v2.0

Guidance on Avoided Emissions v1.0

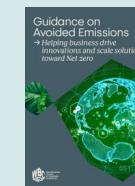
March 22, 2023. 55 pages.



- Foreword
- Executive summary
- 01. Introduction
- 02. Understanding avoided emissions
- 03. Leveraging avoided emissions
- 04. Validating claim eligibility
- 05. Assessing avoided emissions
- 06. Communicating and reporting avoided emissions
- 07. Limitations of the guidance
- 08. Closing remarks
- 09. FAQ
- 10. Glossary
- 11. Avoided emissions accounting principles
- 12. Independent stakeholder statement
- Bibliography
- Endnotes
- Acknowledgements

Guidance on Avoided Emissions v2.0

July 24, 2025. 79 pages.



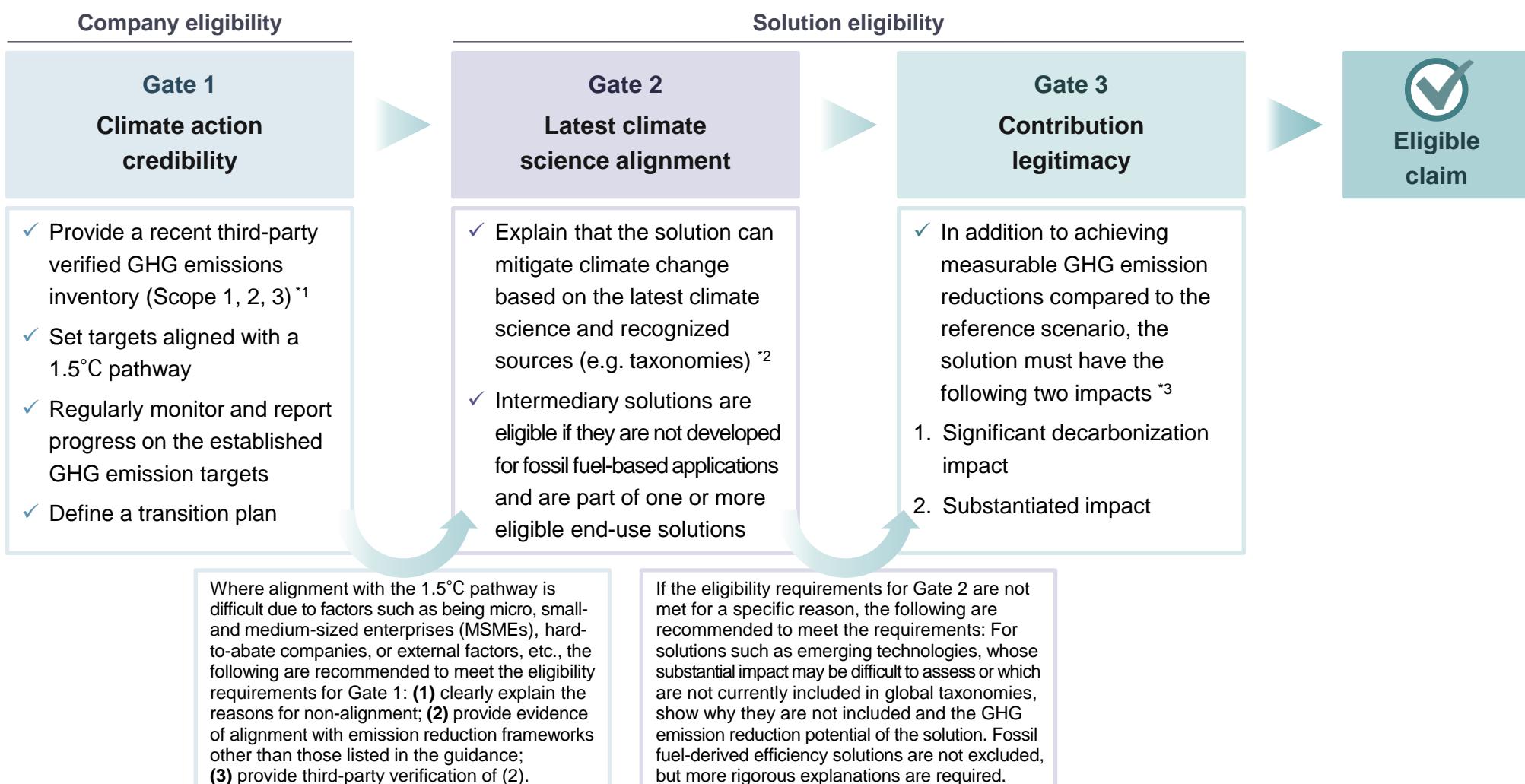
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- 07. Leveraging avoided emissions
- 08. Implementing the guidance**
- 09. Limitations
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 - Endnotes
 - Acknowledgements

Highlights of additions to Guidance on AE v2.0

- 02:** Based on the definition of the GHG protocol, the solutions are divided into two types: (1) intermediary solutions and (2) end-use solutions, and the concept of items necessary for evaluating avoided emissions, such as system boundary and reference scenario, is explained.
- 03:** Recommendations are given for cases where the eligibility requirements for gates 1 and 2 are not met for the three gates to ensure eligibility to calculate and disclose avoided emissions.
- 04:** Detailed examples of how to determine the functional unit and data sources to be used in the calculation of life cycle emissions, as well as how to calculate avoided emissions. It also explains, as an option, methods for allocating avoided emissions within the value chain and for aggregating them at the company/consolidated group level.
- 05:** Added mandatory disclosure items to explain the uncertainty of calculation results and the relationship between intermediary and end-use solutions, as well as to disclose data quality and recalculate avoided emissions in the event of significant changes in calculation assumptions since the previous disclosure.
- 06:** "Tracing and monitoring avoided emissions" section is newly added in v2.0. The importance of traceability and monitoring of avoided emissions is explained, along with technologies, tools and methods that can enhance these traceability and monitoring.
- 08:** "Implementing the guidance" section is newly added in v2.0. The WBCSD has created a set of resources (technical templates, use case repository, sector-specific guidance, etc.) to be used as a reference for this, and posted it in the Avoided Emissions Implementation Hub.

- Companies must confirm their organization's and solution's eligibility for the AE claims in accordance with the three gates.
- v2.0 provides recommendations for meeting the eligibility requirements for Gates 1 and 2, even if they are not met.

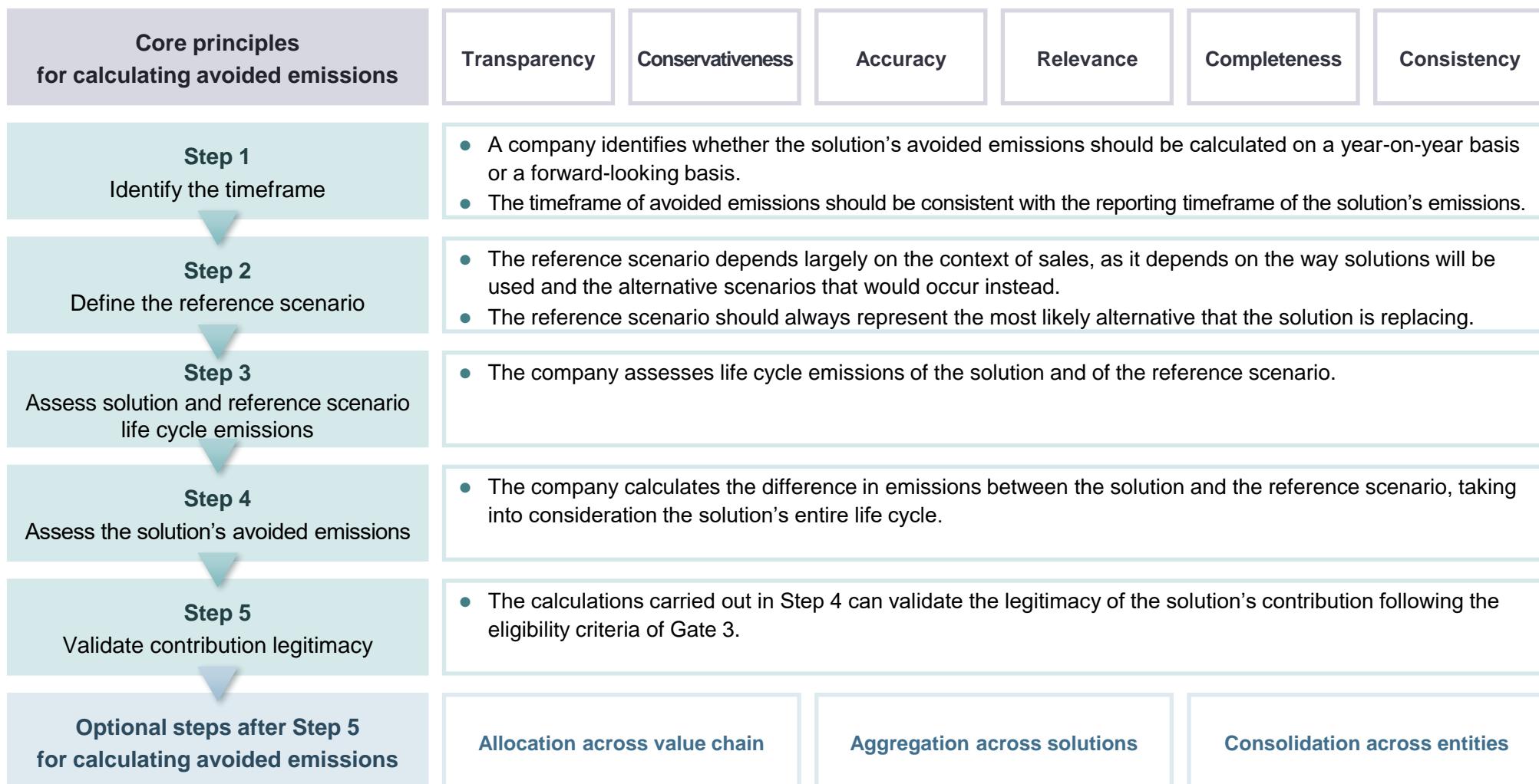
Three gates to ensure eligibility for avoided emissions claims



*1: MSMEs only report GHG emissions inventory (Scope 1, 2, 3); no third-party verification is required. *2: Illustrated in the guidance. *3: Each impact is described in detail in the guidance.
 Sources: WBCSD (2025). *Guidance on Avoided Emissions: Helping business drive innovations and scale solutions toward Net zero*.

- Companies may calculate and disclose AE in accordance with the guidance, only if they pass the three eligibility gates.
- In order to use a consistent approach to calculating AE, the guidance describes the following five detailed steps.

Five steps to ensuring a consistent approach to assessing avoided emissions



- Standardizing the reporting of AE is important to improve its comparability and consistency and to minimize the risk of misstatement. Companies should report AE in accordance with the following guidelines.

Guidelines for external reporting of avoided emissions

1. Avoided emissions should always be disclosed separately from GHG inventory emissions, carbon sinks, and financial contributions to transition (like offsets or carbon credits) outside of the organizational boundary.
2. Avoided emissions should not be used to claim a company's or solution's carbon neutrality.
3. Companies should provide key information when reporting at a solution level, such as a description and definition of the scope including the system boundary and the life cycle GHG emissions of the solution and reference scenario.
4. Companies should specify whether they used the forward-looking (FW-looking) or year-on-year (YoY) approach in the Step 1 (Identify the timeframe) to quantify avoided emissions.
5. Companies should communicate a quantitative estimate or qualitative description of the uncertainty of the results, such as key assumptions and limitations associated with the calculations and sources for the underlying data.
6. Any reported and communicated avoided emissions must comply with the three eligibility criteria gates. Companies who make avoided emissions claims externally must provide evidence of compliance with each gate.
7. Companies must specify the percentage of total revenue the avoided emissions solutions represent when avoided emissions are communicated externally.
8. Companies should list all other known key components or the link between intermediary and end-use solutions that are essential to realizing the avoided emissions.
9. Companies should state if their avoided emissions impact has been reviewed by a third party or not.
10. Companies should publicly communicate any identified negative side effects of the solution, in terms of environmental trade-offs, etc., and must provide a description of the actions undertaken to mitigate these effects.
11. Companies should state whether they have identified potential rebound effects ^{*1}. If these effects have been identified, companies must describe their nature and the actions undertaken to mitigate them.
12. Where there have been significant changes to a calculation, companies should report on the details of and chosen policy for the recalculation. Reporting on original and recalculated figures supports transparency.
13. Companies should report on avoided emissions in a separate section from their GHG inventory emissions. In the case of a FW-looking assessment, the cumulative avoided emissions should be supported by an annual breakdown.

- Japanese companies can refer to GX League Basic Guidelines for measurement and disclosure of AE.
- Guidelines require own emission reduction targets, consideration of negative impacts, and transparent disclosure.

Premises for disclosing climate-related opportunities

- Basic Guidelines for Disclosure and Evaluation of Climate-related Opportunities (GX League Basic Guidelines) requires companies to meet the following requirements (1)-(3) for their emissions reduction efforts as a premises for disclosing climate-related opportunities.
 - (1) **Setting science-based emissions reduction targets**
 - (2) **Developing a transition strategy to achieve targets and ensuring its viability**
 - (3) **Disclosure of targets/strategies and their results**
- GX League Basic Guidelines summarizes the key points for climate-related opportunities disclosure as follows (1)-(5):
 - (1) **Disclose targets, strategies, and own emission reduction efforts**
 - (2) **Explain the relationship between climate-related opportunities and finance**
 - (3) **Disclose financial effect:** In cases where it is difficult to provide quantitative figures, companies may disclose qualitative information.
 - (4) **Consider negative impacts**
 - (5) **Disclose with transparency:** Disclosure that can effectively communicate with financial institutions is a disclosure that satisfies the four elements set out in TCFD; consistency, comparability, reliability, and clarity.

Goods and services subject to AE calculation and disclosures

- The eligibility criteria of goods and services for which avoided emissions may be calculated and disclosed are as follows.
 - (1) **Alignment to the achievement of carbon neutrality:** The goods and services must be in line with the targets of the Paris Agreement or latest climate science.
 - (2) **Goods and services have a role in contributing to avoided emissions:** There should be a clear indication that the goods and services relate to factors that reduce emissions. Avoided emissions not only cover final products, but also the components.
- The following are four principles for disclosing avoided emissions.
 - (1) **Clear distinction from GHG inventories**
 - (2) **Meeting eligibility:** Goods and services, for which avoided emissions are calculated, should meet eligibility, with companies' commitment to their own emissions reduction.
 - (3) **Consideration of negative impacts due to the supply of such goods and services**
 - (4) **Transparent disclosure:** For easier evaluation for financial institutions, it is recommended that methodologies and disclosure locations be kept consistent. However, since methodologies and other frameworks are under development, any changes over time are recommended to be disclosed.*1

- PCAF launched a public consultation on new methodologies/guidance for the PCAF Standard on December 3, 2024.
- Revisions to PCAF Standard Part A include “Financed Avoided Emissions and Forward-looking Metrics.”

New methodologies and guidance areas for PCAF 2024 public consultation

- Working Groups under the PCAF Global Core Team will review feedback from all relevant stakeholders, and new methodologies and guidance will be finalized in 2025, subject to approval by the Core Team.
- The new methodologies/guidance in the PCAF 2024 Public Consultation covers Part A (Financed Emissions) and Part C (Insurance-Associated Emissions) of the PCAF Standard.

New methodologies and guidance areas for PCAF 2024 public consultation



PCAF Standard Part A:
Financed Emissions

Use of proceeds accounting



Financed avoided emissions and forward-looking metrics



Securitizations and structured products



Inventory fluctuations



Sub-sovereign debt



Undrawn loan commitments



PCAF Standard Part C:
Insurance-Associated
Emissions



Treaty reinsurance



Project insurance



- FAE are the AE of a financial institution's portfolio and are calculated in the same way as FE.
- Financial institutions have the advantage of evaluating the impact and opportunities of their portfolios from FAE.

Overview of financed avoided emissions and advantages to financial institutions

Financed avoided emissions: Avoided emissions through financing activities (portfolio avoided emissions)

- Similar to financed emissions, financed avoided emissions are the avoided emissions in the investment and loan portfolio attributed based on the holding ratio of financial institutions, using avoided emissions which are disclosed by companies and estimated by the financial institutions.
- Financial institutions are expected to use them to measure the impact and opportunity (future earning/return) relating to their investment and loan portfolios.
- In particular, avoided emissions can facilitate climate action in the financial sector, as they provide financial institutions with a way to approach climate-related opportunities in addition to the current risk-centered perspective on climate action. By using avoided emissions, financial institutions can evaluate the environmental performance of decarbonization technologies as well as their direct footprint (GHG emissions) in their portfolios and consider investing in and financing these technologies as a contribution to decarbonization.
- If stakeholders can further advance and align practical guidance on technical/methodological frameworks, allocation rules, asset classes/instruments and terminology of avoided emissions, industries and financial institutions can strengthen their partnership in decarbonization through avoided emissions.

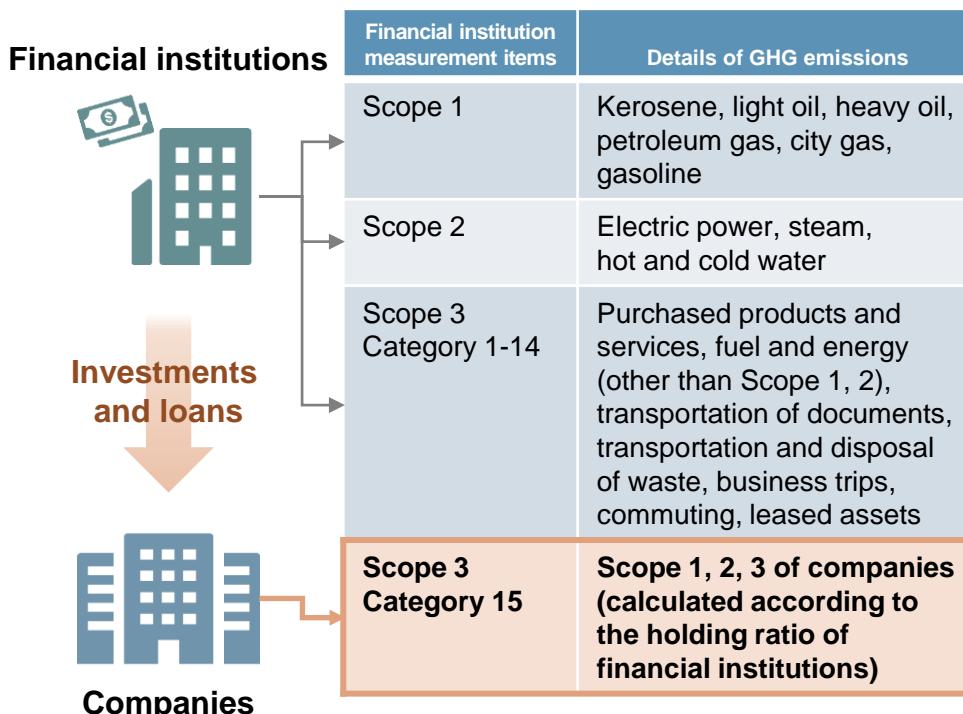
Standard formula for financed avoided emissions of investment portfolio

$$\text{Financed Avoided Emissions} = \sum_i \frac{\text{Investment}_i}{\text{Investee Equity}_i + \text{Investee Debt}_i} \times \text{Avoided Emissions of Investee}_i$$

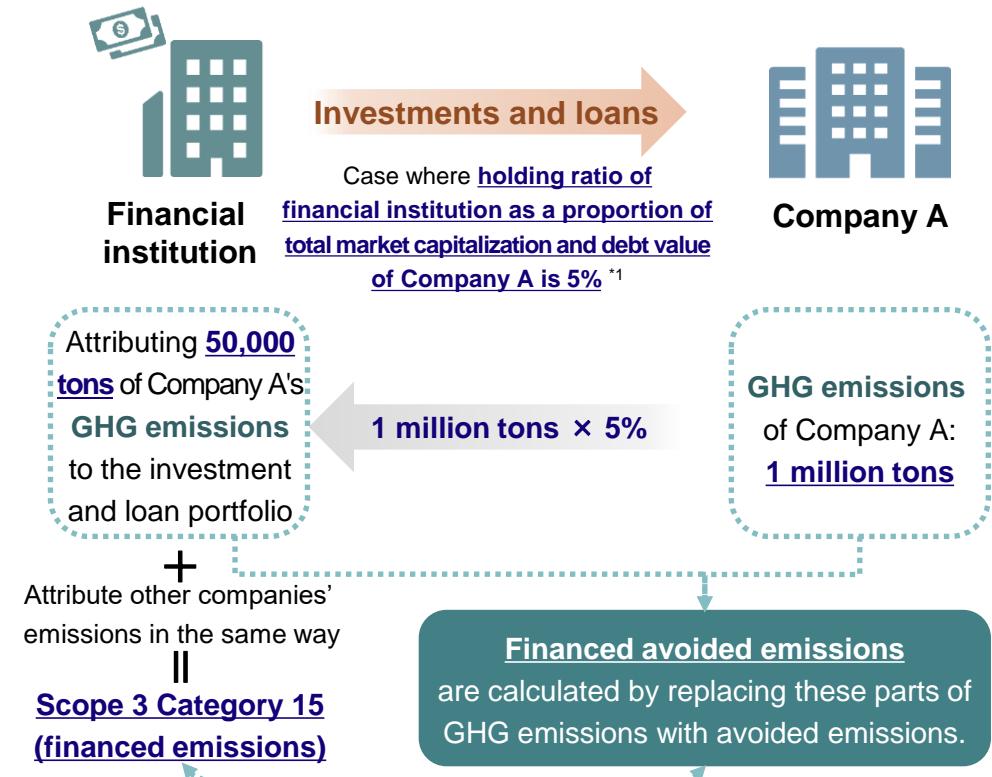
- In the current PCAF Standard Part A, financed avoided emissions are only measured and disclosed for renewable energy project finance, but in the guidance under preparation they are extended to all finance and asset classes. Therefore, when this new guidance is finalized, it is expected that financial institutions will develop and accelerate engagement for calculating and disclosing avoided emissions and the provision of financial and non-financial solutions to companies.
- Financial institutions may disclose financed avoided emissions related to financial services that they have provided, but must disclose them separately from financed emissions.
- Disclosure of financed avoided emissions is voluntary for financial institutions.

- Scope 3 Category 15 (FE) is usually the largest among GHG emissions measured by financial institutions.
- FAE are a metric that replaces the GHG emissions part in the formula for FE with AE.

GHG emissions measured by financial institutions



Financed emissions and financed avoided emissions



Among the GHG emissions measured and disclosed by financial institutions, Scope 3 category 15 (FE), to which GHG emissions of companies are attributed based on the holding ratio of the financial institution, is usually the largest.

Financed avoided emissions are a metric that replaces the portion of GHG emissions of the companies in the financed emissions formula with avoided emissions.

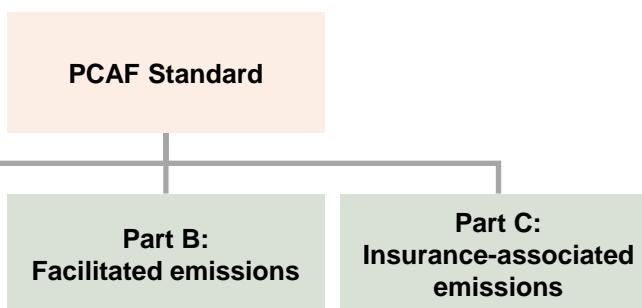
*1: For example, if the total market capitalization, debt (book value), and non-controlling interests (book value) of Company A (EVIC) amount to \$100 million, and a financial institution invests in Company A shares of \$2 million and Company A bonds of \$3 million (or makes a \$3 million loan to Company A), then the financial institution's holding ratio is 5% = $(\$2 \text{ million} + \$3 \text{ million}) / \$100 \text{ million}$.

- PCAF is a global initiative to standardize methods for measuring and disclosing GHG emissions from financial activities.
- Mizuho Financial Group is a Core Team member of PCAF Global and a chair of the PCAF Japan coalition.

PCAF



- PCAF (Partnership for Carbon Accounting Financials) was established in the Netherlands in 2015 as a global initiative to standardize methods for measuring and disclosing GHG emissions from financing activities.
- As of October 2025, 663 financial institutions around the world are signatories of PCAF, and the total assets of signatories amount to \$97.5 trillion.
- Since its establishment, PCAF has developed methods for measuring and disclosing GHG emissions from financial activities. In November 2020, it released the "The Global GHG Accounting and Reporting Standard for the Financial Industry" (PCAF Standard).
- The PCAF Japan coalition was established in November 2021. Since then, the PCAF Japan coalition has been chaired by Mizuho Financial Group. As of October 2025, 28 Japanese financial institutions had joined PCAF Japan coalition.



PCAF Global Core Team

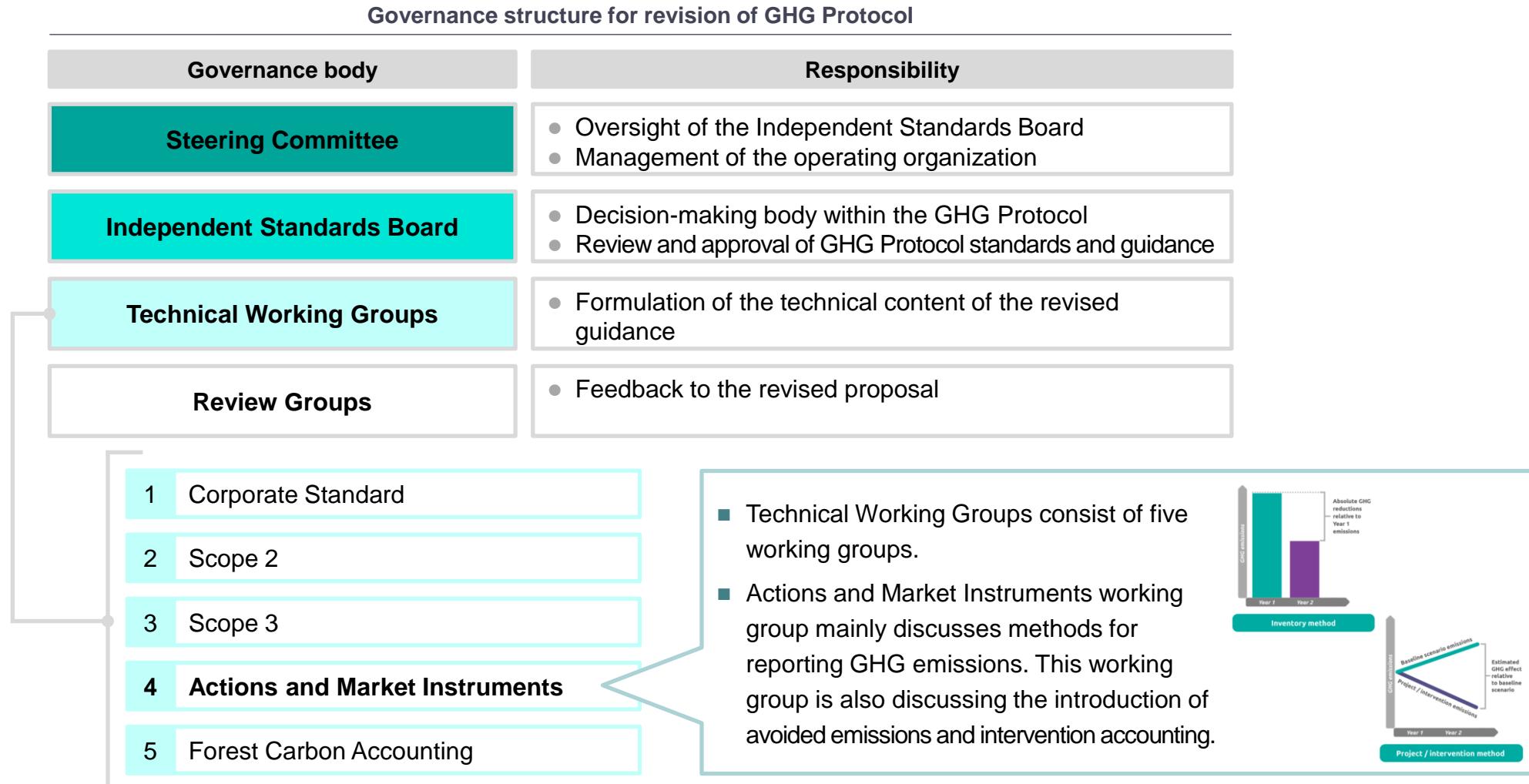
- The Core Team consists of members selected from signatories, and it leads the development of the new PCAF Standard. Among Japanese financial institutions, only Mizuho Financial Group is a member of the Core Team.
- Working groups under the Core Team review the details of each area of the new PCAF Standard.

Core Team Members

Financial institution	Category	Headquarters
Phoenix Group 【Chair】	Insurance	United Kingdom
Commonwealth Bank of Australia	Commercial bank	Australia
EIG	AO/AM ^{*1}	United States
ING	Commercial bank	Netherlands
Itaú Unibanco	Commercial bank	Brazil
Metrics Credit Partners	AO/AM	Australia
Mizuho Financial Group	Financial group	Japan
Morgan Stanley	Investment bank	United States
NMB Bank	Commercial bank	Nepal
Nordea	Commercial bank	Finland
PIMCO	AO/AM	United States
Swiss Re	Insurance	Switzerland
United Bank for Africa	Commercial bank	Nigeria

- GHG Protocol is being revised as it is expected to be linked with financial information and integrated with capital markets.
- Actions and Market Instruments working group is considering introducing avoided emissions into the GHG Protocol.

Considering introduction of avoided emissions into revised GHG Protocol



- In April 2025, Mirova, Robeco and other organizations announced the official launch of the Avoided Emissions Platform (AEP).
- Panasonic Holdings is the only Japanese company to be a partner (corporates) of AEP.

Avoided Emissions Platform

- AEP, the innovative global platform, aims to properly assess the impact of climate solutions by adopting a transparent methodology for calculating avoided emissions, an essential metric for advancing the transition to a sustainable economy.
- AEP is supported by 10 asset managers and owners, representing more than USD 4 trillion of assets under management, as well as one international Corporate Investing Bank, six recognized data providers, 13 leading corporates and an independent scientific committee.
- AEP is an interactive tool which models the avoided emission factors for 65 climate solutions. It is based on a transparent and open access methodology for calculating avoided emissions. This initiative has benefited from recommendations by a dedicated scientific committee, building on existing guidance on avoided emissions and ensuring a credible approach to assessing potential emission savings across sectors. The platform can be accessed with a license and will be expanded over time with new solutions.

Significant benefits delivered to a diverse range of stakeholders

Financial institutions	Gain enhanced decision-making capabilities through reliable, harmonized metrics that help align their portfolios with global net-zero objectives.
Companies	Can accurately calculate and communicate their avoided emissions, improving credibility and access to capital while gaining a competitive edge.
Consultants and data providers	Gain access to comprehensive resources, fostering collaboration and promoting market differentiation.
Regulatory bodies	Receive valuable insights to inform policy development and track progress toward climate goals.
Academics	Obtain robust data for research and the advancement of sustainability methodologies.

- AE are disclosed on the GX Dashboard, the information platform for the GX League, although their disclosure is voluntary.
- Disclosure of AE through a unified information platform is a world-leading initiative, and further use of AE is expected.

GX League and GX Dashboard

GX League

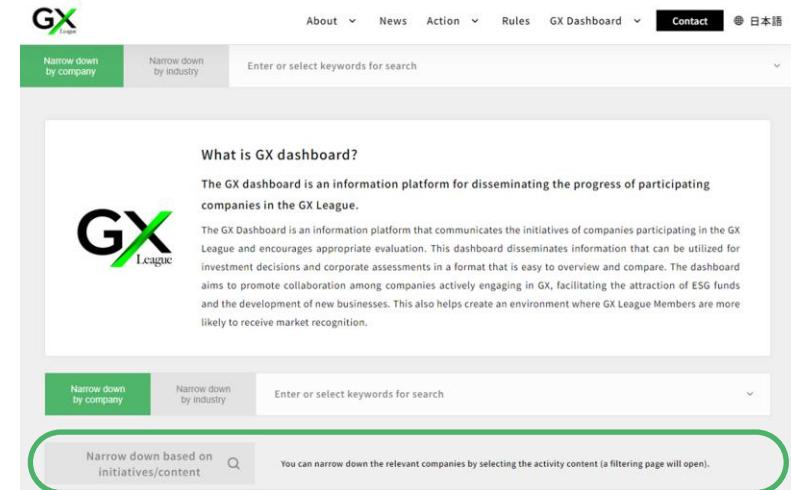
- GX League is a Japanese initiative in which companies aiming to achieve sustainable growth in the present and future society are working towards GX (Green Transformation) with a view to achieving carbon neutrality and social change by 2050, and collaborating with other companies, government agencies, and academia who are undertaking similar initiatives.
- Specifically, the following initiatives are being carried out:
 - Emissions Trading System (GX-ETS)
 - Creating green markets through rule-making (Market Rule-making WG)
 - Creating business opportunities (startup collaboration, etc.)
 - Promoting corporate exchanges (GX Studio/GX Salon)

GX Dashboard

- The GX Dashboard is an information platform that communicates the status of GX League participants' initiatives and encourages appropriate evaluation.
- It disseminates information that can be used for investment decisions and corporate evaluations in a format that is easy to list and compare.
- By improving the user interface, etc., it will increase the frequency of reference, promote collaboration among companies working on GX, in areas like attracting funds from financial institutions and developing new businesses, and create an environment in which GX League participants can more easily receive evaluation from the market.
- The GX Dashboard also plays a role in enhancing the effectiveness of GX-ETS as a pledge-and-review framework.

Disclosure of avoided emissions on the GX Dashboard

- Items related to avoided emissions on the GX Dashboard (No. 65, 66)
 - Companies that calculate their own avoided emissions can disclose the avoided emissions (voluntary disclosure).
 - If companies disclose avoided emissions, the URL of the existing disclosure showing the basis for calculation will also be posted.
 - For disclosure of avoided emissions, please refer to the "Basic Guidelines for Disclosure and Evaluation of Climate-related Opportunities" (published in March 2023).



In the "Narrow down based on initiatives/content" section of the GX Dashboard, if you check the "Applicable" box for "Avoided Emissions" and "Basis for Avoided Emissions," you will see companies that have disclosed their avoided emissions.

- In June 2025, the "Draft Methodology for Measuring Avoided Greenhouse Gas Emissions in the Built Environment Sector" was published.
- **Nikken Sekkei and Mizuho Research & Technologies serve as the secretariat of the Committee on Guidelines.**

Draft Methodology for Measuring Avoided Greenhouse Gas Emissions in the Built Environment Sector

- In June 2024, Nikken Sekkei proposed the establishment of the "Committee on Guidelines for Measuring Avoided Emissions in the Built Environment Sector" comprising external experts and stakeholders (with a secretariat consisting of Nikken Sekkei and Mizuho Research & Technologies). In June 2025, the committee's **Draft Methodology for Measuring Avoided Greenhouse Gas Emissions in the Built Environment Sector** was published.
 - The committee includes representatives from the Development Bank of Japan and Mizuho Bank, who contributed to the formulation of this draft by providing opinions from the perspective of the financial industry.
- In the built environment sector, measuring avoided emissions has been highly complex due to factors such as the large number of stakeholders involved in building construction and operation, the longer service life compared to consumer products, the occurrence of renovations, the prevalence of leasing arrangements without a sale, and the dual nature of real estate as both a product and a one-off project. Consequently, the development of guidelines has been delayed.
- **This initiative aims to introduce the world's first draft guidelines on avoided emissions for the built environment sector, thereby facilitating the acceleration of the GX (Green Transformation: decarbonization) market in these fields.**
- This draft outlines in detail the approach to measuring avoided emissions in the built environment sector, starting with an outline of the draft and an explanation of terminology, and including the eligibility criteria of avoided emissions claims, the entities claiming avoided emissions, the measurement method, the approach to measuring corporate-level avoided emissions, and third-party verification and reporting methods for avoided emissions.

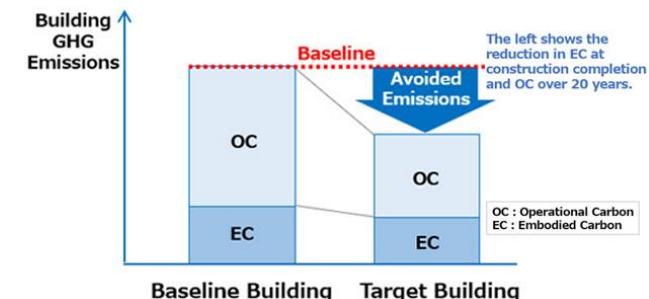
Nikken Sekkei press release: "Proposal for a Draft Methodology for Measuring Avoided Greenhouse Gas Emissions in the Built Environment Sector" URL:

JP : https://www.nikken.jp/ja/news/press_release/2025_06_18.html

EN: https://www.nikken.jp/en/news/press_release/2025_06_18.html



Concept of avoided emissions ^{*1 *2}



Differences between building construction/real estate and consumer products

	Building Construction and Real Estate	Home Appliances and Consumer Goods
Service Life	Long Service Life (30–60 Years)	Short Service Life (5–15 Years)
Type of Business	Construction of residential buildings for sale and mainly office buildings for lease (building management)	Mainly Sales of products
Scope of Avoided Emissions	Both Embodied Carbon (Products, Construction, Renovation, Disposal) and Operational Carbon (Use Phase)	Mainly Operational Carbon (Use Phase)

*1: Operational carbon: Carbon emissions resulting from energy and water use during the operation of a building.

*2: Embodied carbon: Carbon emissions associated with the production of building materials, new construction, renovation, and demolition.

Sources: Nikken Sekkei Press Release, Committee on Guidelines for Measuring Avoided Emissions in the Built Environment Sector (2025). *Draft Methodology for Measuring Avoided Greenhouse Gas Emissions in the Built Environment Sector*.

- In April 2025, JEMA published the JEMA-GX Report 2024. It discusses efforts to meet international standards for AE calculation and disclosure methods, as well as the AE disclosure status of members.

JEMA-GX Report 2024

- JEMA believes that it is important to grasp the current state of the electrical machinery industry, explore the role it must play and opportunities for contributions, and widely disseminate this information to society, during this major period of social transformation toward a sustainable society including carbon neutrality. With this in mind, JEMA has been producing the JEMA-GX Report since FY2023 to continuously review the electrical machinery industry's green transformation, particularly its efforts toward decarbonization, and to explain corporate efforts externally, with a view to 2030 being an important milestone toward achieving carbon neutrality in 2050. The report's second edition, "[JEMA-GX Report 2024](#)," was published in April 2025.
- This report covers the progress of JEMA members in obtaining SBTi certification and reducing Scope 1, 2, 3 emissions, as well as explaining "avoided emissions" as a metric for green transformation promotion and corporate problem-solving capabilities, collaboration with stakeholders, and JEMA's efforts toward achieving international standards for calculation and disclosure methods of avoided emissions and the calculation and disclosure status of members. In particular, [JEMA, in cooperation with the government and the GX League, is leading the development of an international standard \(IEC 63372\) for calculating avoided emissions for electrical and electronic products and IoT services as the international secretariat, with publication scheduled for 2025.](#)
- [In the electrical machinery industry, which is characterized by large emissions such as Scope 3 during product use, it is important to promote the active disclosure of information on avoided emissions as a contribution to society. Going forward, JEMA will also develop measures to encourage the members to calculate and disclose information in accordance with international standards.](#)

JEMA-GX Report 2024 URL:

JP: <https://www.iema-net.or.jp/sustainability/climatechange/05.html#02>





2. Disclosure of avoided emissions by Japanese companies (FY2024)

This section surveys the disclosure status of avoided emissions in integrated reports and other sustainability-related reports released in FY2024, focusing on Japanese companies in the TOPIX 500. The results show that the number of Japanese companies disclosing avoided emissions in FY2024 increased significantly compared to FY2023. The summary of the survey results is as follows:

» Number of Japanese companies disclosing their avoided emissions has increased significantly.

- In FY2024, 120 companies in the TOPIX 500 and 60 other companies disclosed their avoided emissions. Compared to FY2023, the number of companies disclosing avoided emissions increased by 32% in the TOPIX 500 and by 48% overall, showing a significant increase even compared to recent years, and indicating that the disclosure of avoided emissions by Japanese companies is accelerating.
- The WBCSD, one of the convening bodies of the GHG Protocol, published the Guidance on Avoided Emissions in March 2023, and GX League published the Basic Guidelines for Disclosure and Evaluation of Climate related Opportunities. These efforts are thought to have led to a greater awareness of avoided emissions and a deeper understanding of calculation and disclosure methods, leading to increased disclosure of avoided emissions by Japanese companies.

» An increasing number of small and medium-sized companies and unlisted companies have also disclosed avoided emissions.

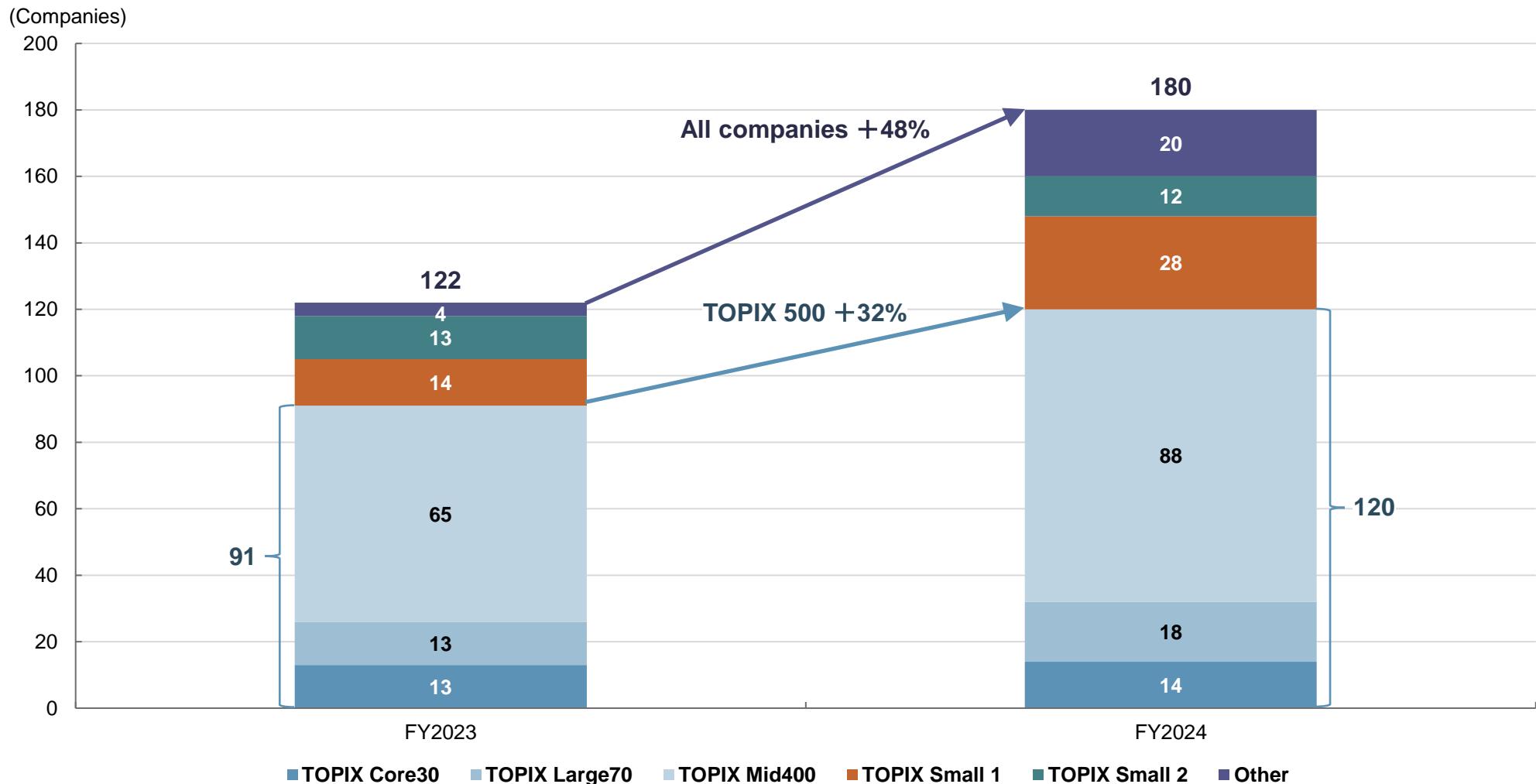
- Compared to FY2023, there has been noticeable increase in disclosure of avoided emissions by middle-market companies (TOPIX Mid400 companies) and smaller and unlisted Japanese companies in FY2024.
- In terms of the number of companies disclosing avoided emissions by listed market, Prime Market companies, which are required by the Corporate Governance Code to disclose climate-related information, account for approximately 90% of the total, but the number of Standard Market companies and unlisted companies disclosing avoided emissions is also increasing.
- One challenge is that while an increasing number of unlisted companies are disclosing their avoided emissions, it is more difficult for unlisted companies to find a place to make their disclosures than for listed companies.

» Among the Tokyo Stock Exchange 33 (TSE 33) sectors, *Electric Appliances* continued to rank top in terms of the number of companies disclosing avoided emissions in FY2024, as they did in FY2023. Meanwhile, *Construction* and *Information & Communication* are sectors seeing high growth rates in the number of companies disclosing avoided emissions.

- Among companies in the TSE 33 sectors, there is recognition that Scope 3 Category 11 (use of sold products) has a high GHG emission volume, and as a supplementary metric, *Electric Appliances* is working across its industry to promote and expand avoided emissions, maintaining its top position in terms of the number of companies disclosing avoided emissions (29 companies), like for FY2023. The International Electrotechnical Commission (IEC) is in the final stages of work to establish standards for avoided emissions. *Chemicals* is in second place with 19 companies, and *Construction* is in third place with 16 companies.
- The rate of increase in the number of companies disclosing avoided emissions in FY2024 (compared to FY2023) is high in the sectors such as *Electric Appliances*, *Construction*, *Electric Power and Gas*, *Retail Trade*, and *Information & Communication*.
- Looking at the proportion of each sector within the overall total, the proportion of the *Construction* and *Information & Communication*, which saw a significant increase in the number of companies disclosing avoided emissions in FY2024 compared to FY2023, increased, while the proportion of the *Electric Appliances*, *Electric Power and Gas*, and *Retail Trade* also increased slightly. On the other hand, the proportion of *Chemicals* and *Wholesale Trade*, which saw the number of companies disclosing avoided emissions remain flat, decreased.

- Mizuho surveyed Japanese companies mainly in the TOPIX 500 ^{*1} for disclosure of AE in their reports, etc. in FY2024 ^{*2}.
- 120 companies in TOPIX 500 and 60 other companies disclosed AE, and the number substantially increased from FY2023.

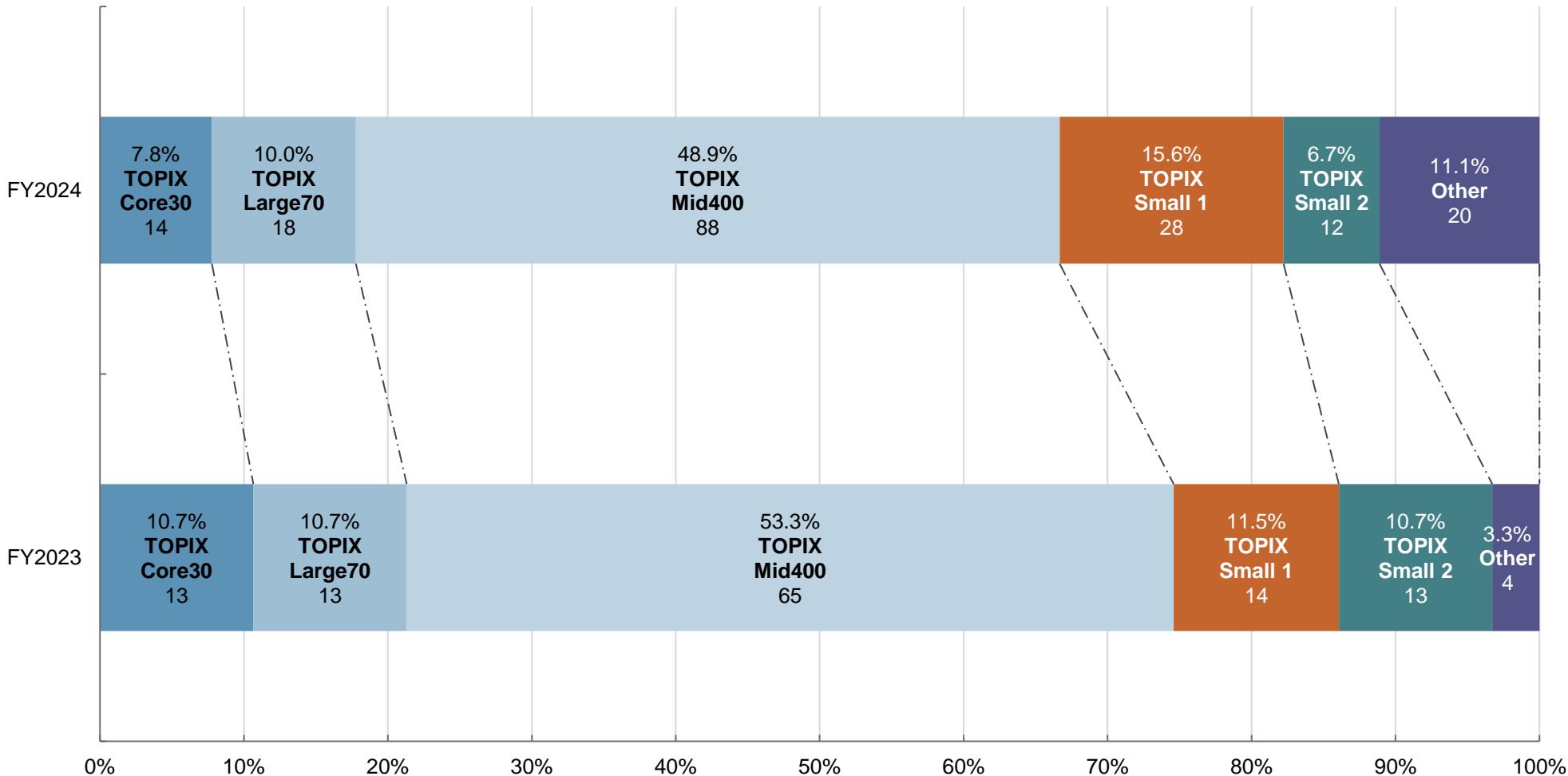
Changes in number of Japanese companies disclosing avoided emissions (by company size)



- Noticeable increase in the disclosure of AE by middle-market and smaller and unlisted Japanese companies in FY2024.
- In Japan, recognition of AE is gradually spreading and the number of companies disclosing AE is expanding.

Changes in distribution of Japanese companies disclosing avoided emissions (by company size)

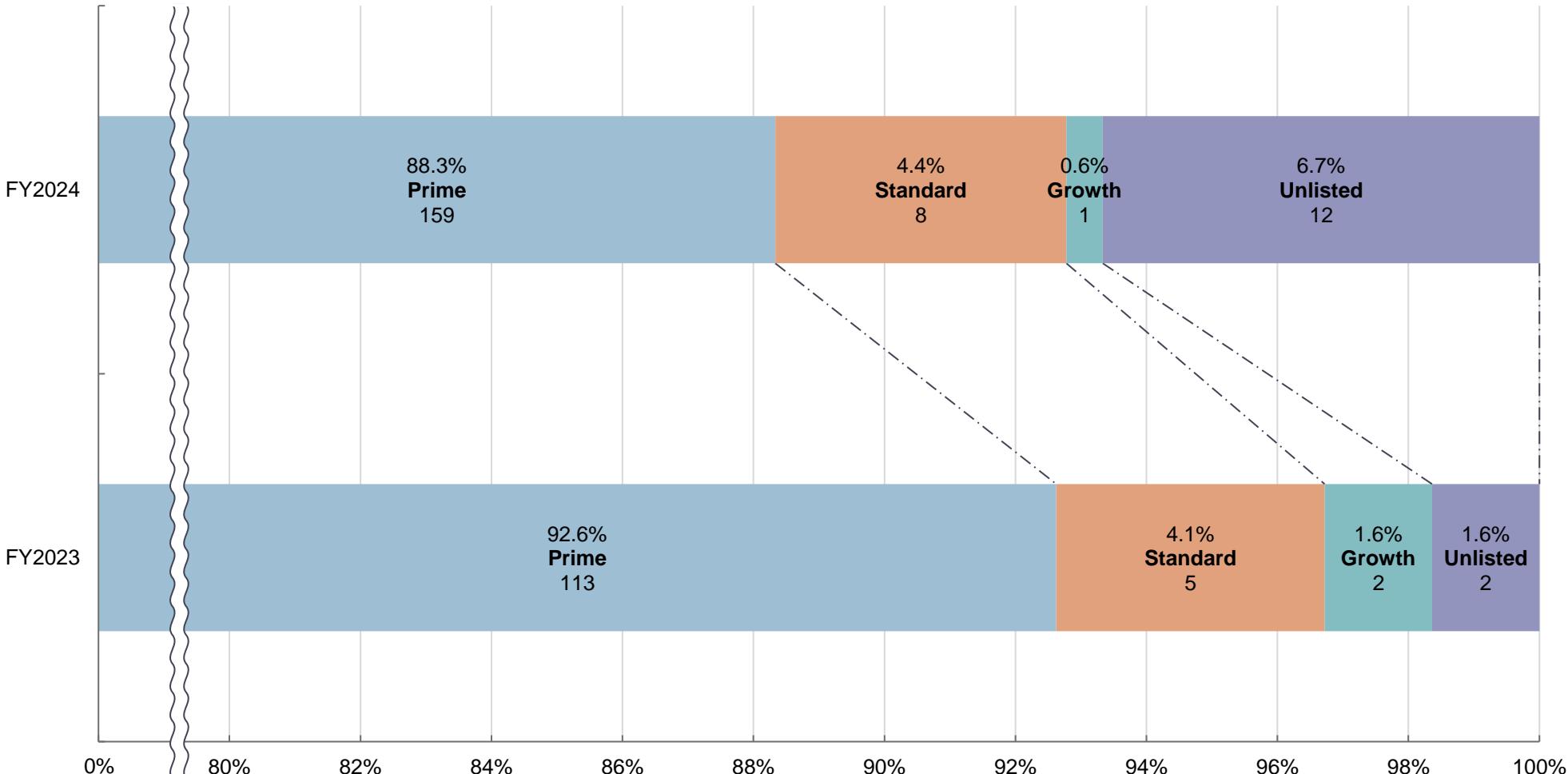
(FY2023: N = 122 = 91 companies of TOPIX 500 + 31 companies of non-TOPIX 500, FY2024: N = 180 = 120 companies of TOPIX 500 + 60 companies of non-TOPIX 500)



- Prime market where climate-related disclosures are required by the corporate governance code accounts for about 90%.
- Disclosure of AE by unlisted companies is increasing, but it is more difficult for them to find a place to make their disclosures than for listed companies.

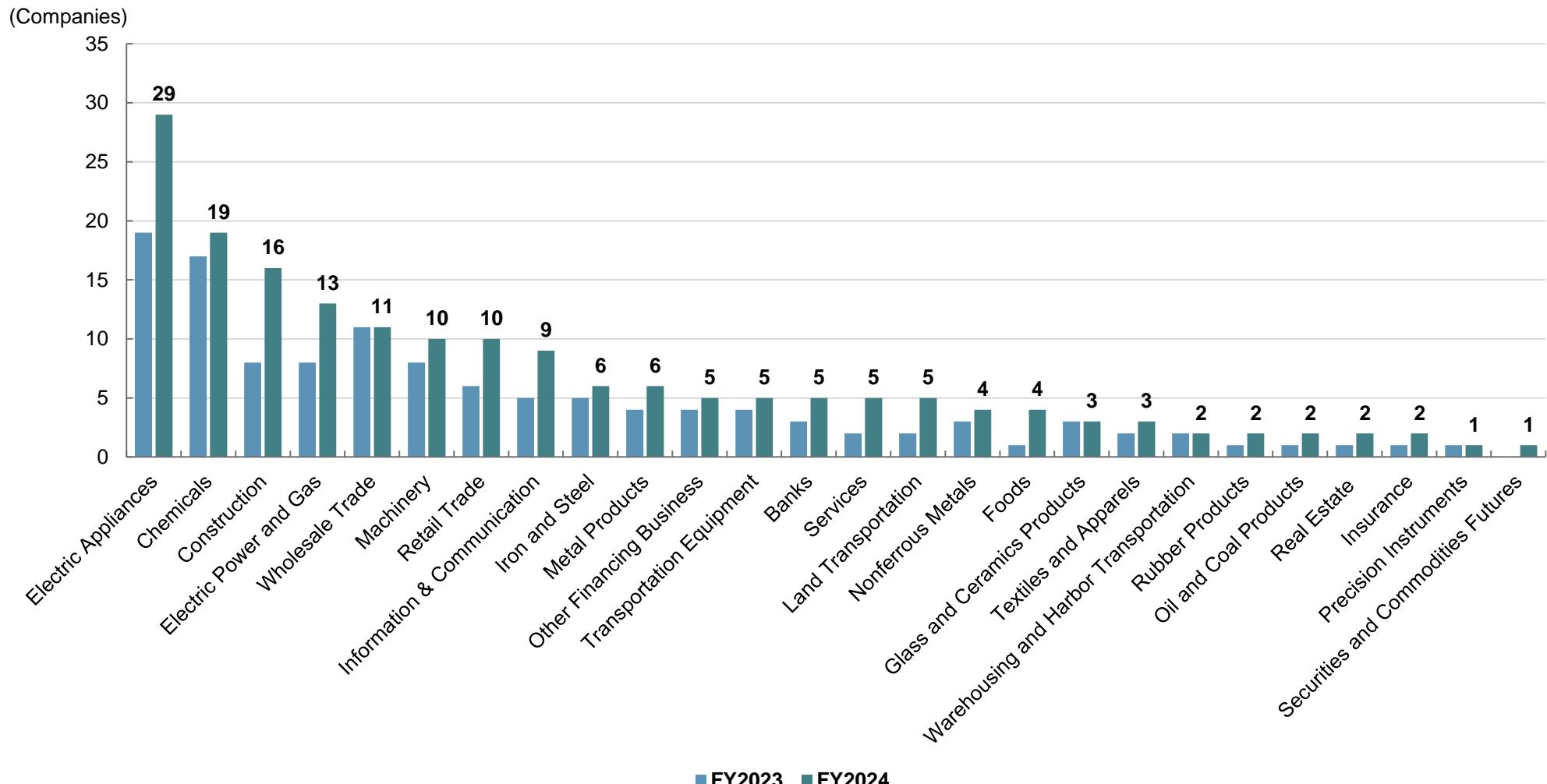
Changes in distribution of Japanese companies disclosing avoided emissions (by listed market)

(FY2023: N = 122 = 91 companies of TOPIX 500 + 31 companies of non-TOPIX 500, FY2024: N = 180 = 120 companies of TOPIX 500 + 60 companies of non-TOPIX 500)



- Among TSE 33 sectors ^{*1}, **Electric Appliances** ranks No. 1 with 29 companies, **Chemicals** No. 2 with 19 firms, and **Construction** No. 3 with 16 companies. The rate of increase in FY2024 was high in the **Electric Appliances, Construction, Electric Power and Gas, and Retail** sectors.

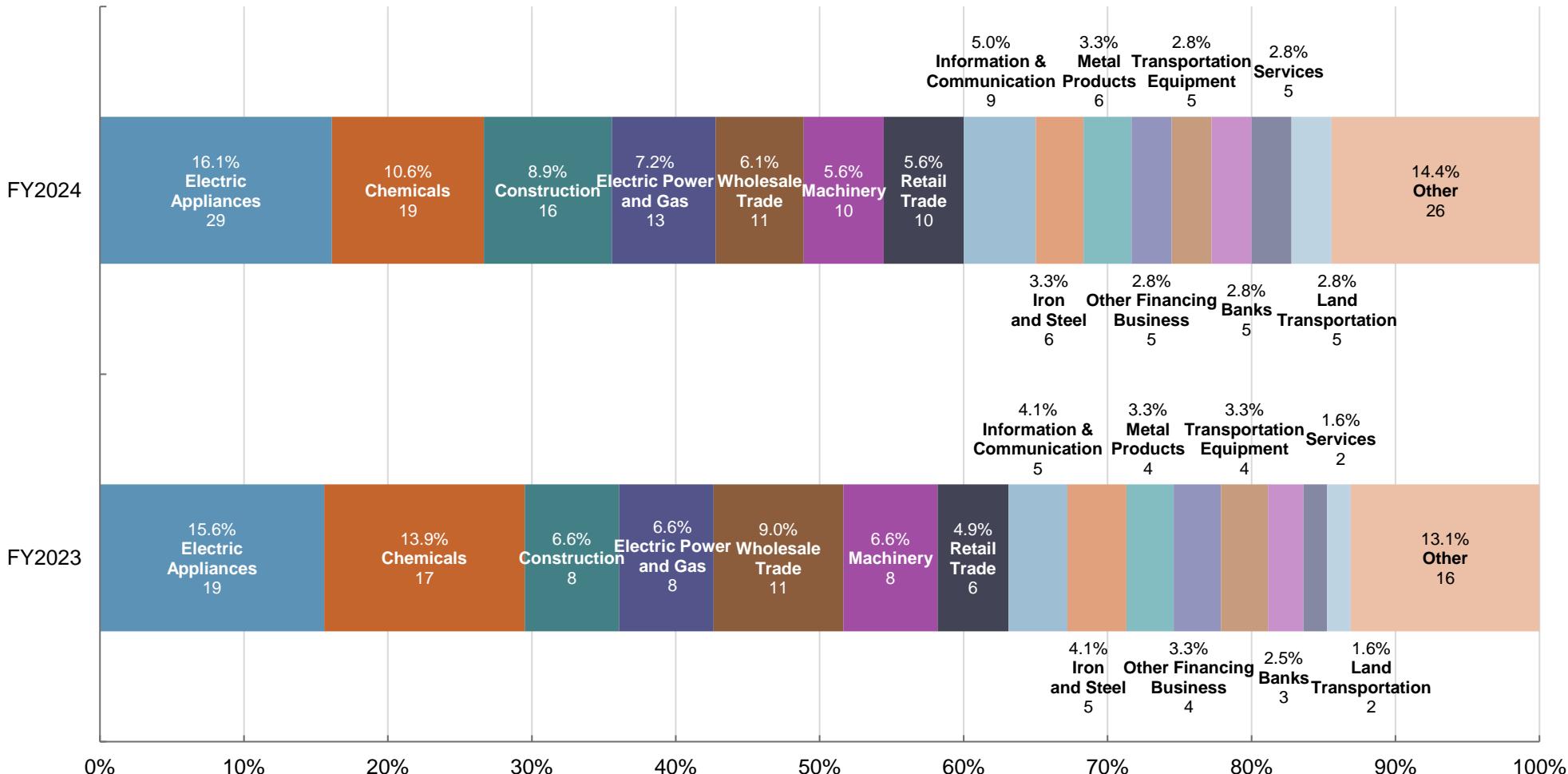
Changes in number of Japanese companies disclosing avoided emissions (by sector)



- In FY2024, the proportion for **Construction** and **Information & Communication**, where the number of disclosing companies increased, rose. The proportion for **Electric Appliances** and **Electric Power and Gas** also rose slightly. Meanwhile, that for **Chemicals** declined.

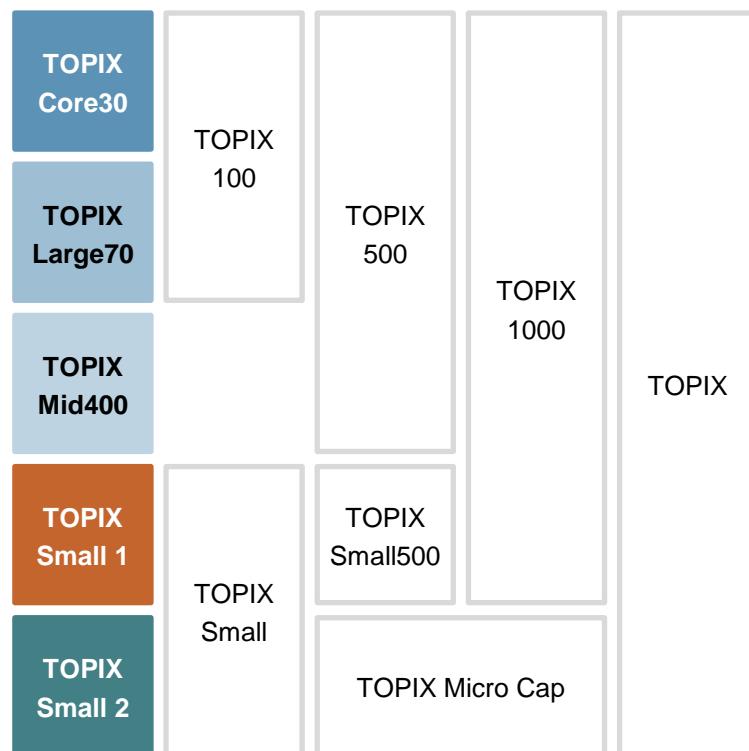
Changes in distribution of Japanese companies disclosing avoided emissions (by sector)

(FY2023: N = 122 = 91 companies of TOPIX 500 + 31 companies of non-TOPIX 500, FY2024: N = 180 = 120 companies of TOPIX 500 + 60 companies of non-TOPIX 500)



Term	Definition
TOPIX	TOPIX (Tokyo Stock Price Index) is a free-float adjusted market capitalization-weighted stock price index that is calculated and published every second by JPX Research, a subsidiary of the Japan Exchange Group (JPX), for stocks listed on the Prime Market of the Tokyo Stock Exchange and stocks listed on the Standard Market that were listed on the former First Section of the Tokyo Stock Exchange (excluding certain stocks).
TOPIX 500	One of the nine indexes that make up the TOPIX New Index Series. A free-float adjusted market capitalization-weighted stock index consisting of the top 500 stocks in the series by market capitalization and liquidity (trading value). These stocks are the TOPIX Core30, TOPIX Large70, and TOPIX Mid400 constituents.
TOPIX Core30	A free-float adjusted market capitalization-weighted stock index consisting of the top 30 Japanese stocks among the TOPIX constituents with particularly high market capitalization and liquidity (trading value). The "TOPIX Core30" represents its constituent stocks in this report.
TOPIX Large70	A free-float adjusted market capitalization-weighted stock price index consisting of the 70 TOPIX constituents with the highest market capitalization and liquidity (trading value) after the TOPIX Core30. The "TOPIX Large70" represents its constituent stocks in this report.
TOPIX Mid400	A free-float adjusted market capitalization-weighted stock price index consisting of 400 middle-market TOPIX constituents with the highest market capitalization and liquidity (trading value) following the TOPIX Core30 and TOPIX Large70. The "TOPIX Mid400" represents its constituent stocks in this report.
TOPIX Small	A free-float adjusted market capitalization-weighted stock index consisting of small-cap TOPIX constituents, that excludes the TOPIX 500 stocks, the 500 stocks with the highest market capitalization and liquidity (trading value).
TOPIX Small 1	The constituents of the TOPIX Small500 among the TOPIX Small constituents. The TOPIX Small500 is a free-float adjusted market capitalization-weighted stock price index consisting of the 500 stocks remaining in the TOPIX 1000, which consists of the 1,000 TOPIX stocks with the highest market capitalization and liquidity (trading value), after excluding the TOPIX 500's top 500 stocks.
TOPIX Small 2	Constituents of the TOPIX Micro Cap among the TOPIX Small constituents. The TOPIX Micro Cap is a free-float adjusted market capitalization-weighted stock price index consisting of the remaining stocks in the TOPIX Small constituents after excluding stocks in the TOPIX Small 1 (or the remaining stocks after excluding TOPIX 1000 stocks from the TOPIX constituents).
Tokyo Stock Exchange 33 (TSE 33) sectors	The Securities Identification Code Committee (SICC) has established the "Guidelines for Sector Classifications," based on which it determines sector of each public company. According to the Guidelines, the standards for classifying industries are to be based on the "Japan Standard Industrial Classification" established by the Ministry of Internal Affairs and Communications. After the SICC determines which Japan Standard Industrial Classification each company falls under based on the details of its business, SICC decides which of the "Sector Classification Items" it falls under based on the results of the determination. There are 33 sub classification items under 10 main Sector Classification Items, and the term "sector" usually refers to a sub classification item. Since the Tokyo Stock Exchange adopts these sub classification items and publishes related stock price sector indices, they are referred to as the Tokyo Stock Exchange 33 (TSE 33) sectors.

Composition of TOPIX indices by size (TOPIX New Index Series)





3. Role of financial institutions in promoting sustainability and utilization of avoided emissions

- Collaboration with financial institutions, including investors, is essential for promoting corporate sustainability.
- The provision of financing and required level of sustainability information disclosure depend on the kind of financial transaction.

Role of financial institutions in promoting sustainability and level of disclosure required

Financial transaction	Loan	Investment in the primary market	Investment in the secondary market
Financial institution	Banks	Investors and underwriters, etc.	Investors
Form of finance	Indirect finance	Direct finance	Direct finance
Form of investment and loan	Corporate and project	Newly-issued securities (stocks, bonds, etc.), mainly corporate	Already-issued (outstanding) securities (stocks, bonds, etc.), mainly corporate
Financing	Financing	Financing	No financing
Positioning in promoting sustainability	Sustainable finance	Sustainable investment for investors and sustainable finance for underwriters	Sustainable investment
Engagement, etc. (other than finance and investment)	Engagement	Engagement. In the case of shareholders, proxy voting.	Engagement. In the case of shareholders, proxy voting.
Required level of sustainability information to be disclosed			
Data quality, assurance and verification			
	Acceptable as long as the level is adequate for disclosure at the time of financing and reporting and management after financing.	Acceptable as long as the level is adequate for disclosure at the time of financing and reporting and management after financing.	High levels of data quality and assurance/verification (as required by the sustainability disclosure standards) are required for benchmark comparison and selection of stocks and bonds.
Comparability			
	Acceptable as long as the level is adequate for disclosure at the time of financing and reporting and management after financing.	Acceptable as long as the level is adequate for disclosure at the time of financing and reporting and management after financing.	A high level of comparability (as required by the sustainability disclosure standards) is required for benchmark comparison and selection of stocks and bonds.

- Utilizing AE in finance can be considered from two perspectives: that of banks/securities companies and that of investors.
- Considering its characteristics, AE seem to be an easy metric to use in sustainable finance.

Utilizing avoided emissions in sustainable finance

Since avoided emissions can be easily applied to sustainable finance and lead to actual financing and impact creation, **there is large scope to use calculated and disclosed avoided emissions in sustainable finance.**

Avoided Emissions

- Basic practice is to calculate and disclose the avoided emissions for each solution/project rather than for the company/consolidated group.
- When calculating and disclosing avoided emissions for a company/consolidated group based on avoided emissions for each solution/project, it is necessary to pay attention to the aggregation method and double counting.

With regard to sustainability information, the formulation of standards/guidance, calculation and disclosure are often discussed from the perspective of investors.

Viewpoint of loans and primary market investments (perspective of banks and securities companies)

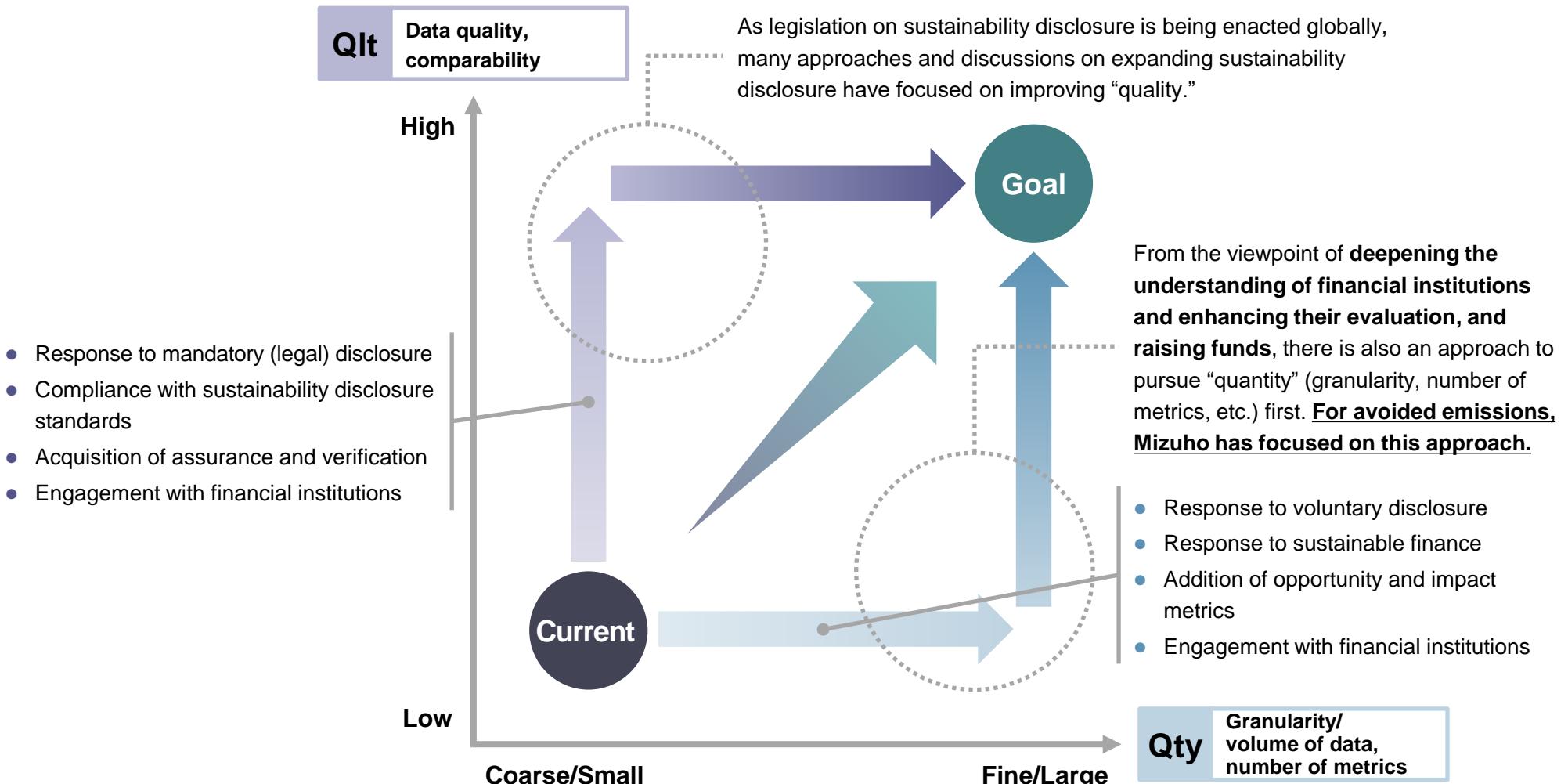
- Flexible disclosure is possible on a solution/project basis according to a company's diverse business characteristics, and evaluation of individual factors is emphasized. Therefore, at present, the data quality and comparability of disclosed sustainability information are not required to the level of secondary market investments.
- Loans and primary market investments lead to financing and create new impacts through avoided emissions.

Viewpoint of secondary market investments (perspective of investors)

- Investor evaluations are mainly at the company/consolidated group level. Disclosed sustainability information needs to have a high level of data quality and comparability from the viewpoint of benchmark comparison and selection of stocks/bonds.
- Enhancing valuation through investment and encouraging investees through engagement and proxy voting lead to an increase in corporate value, but do not raise funds.

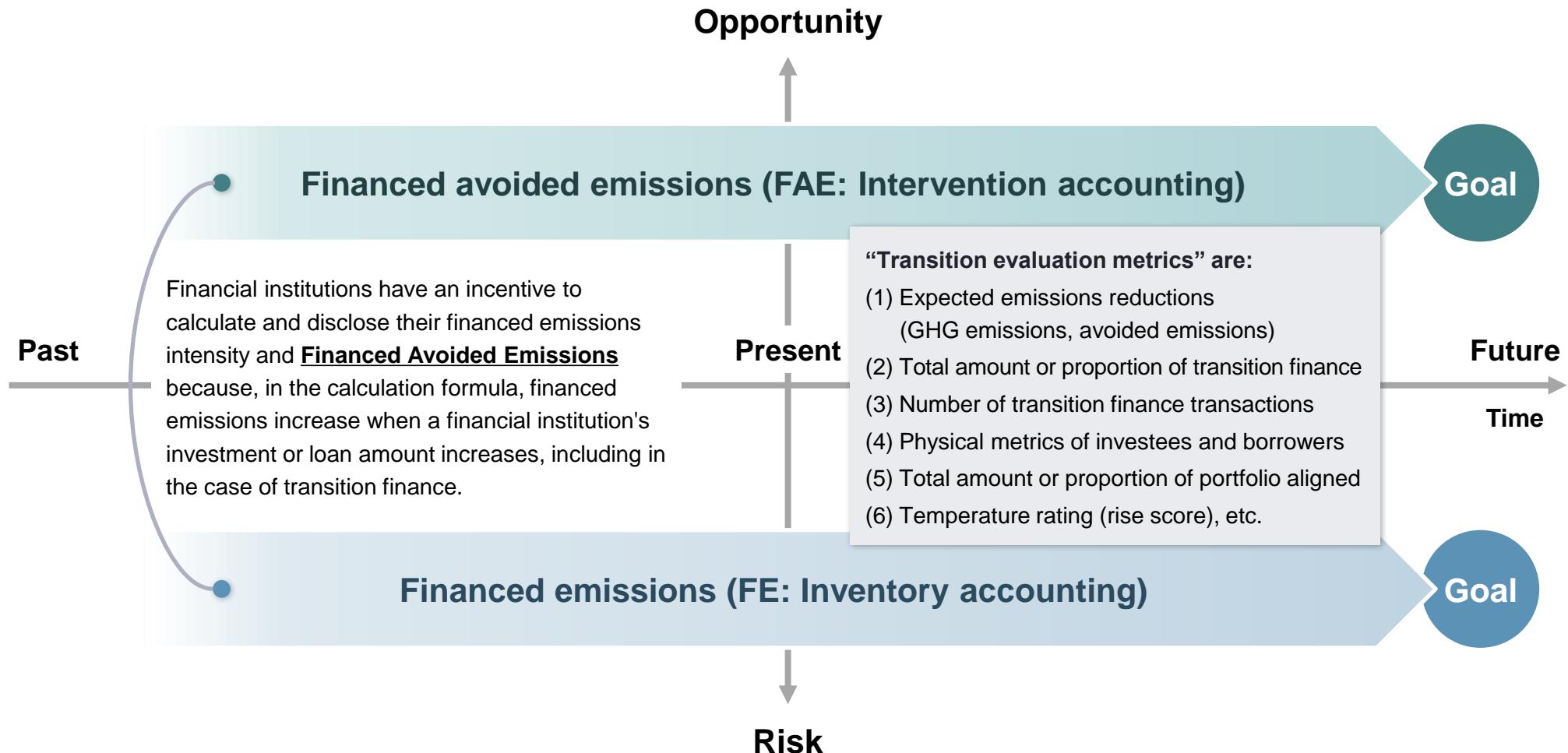
- Stakeholders are increasingly requesting companies to expand their sustainability disclosure. While many approaches to expanding disclosure currently focus on improving "quality," there are also ways to pursue "quantity."

Approaches to expanding sustainability disclosure



- Many financial institutions calculate and disclose FE and other metrics using sustainability information.
- It is important to evaluate climate-related opportunities and transitions using FAE, etc., because FE utilization faces issues.

Evaluation metrics for financial institutions using sustainability information

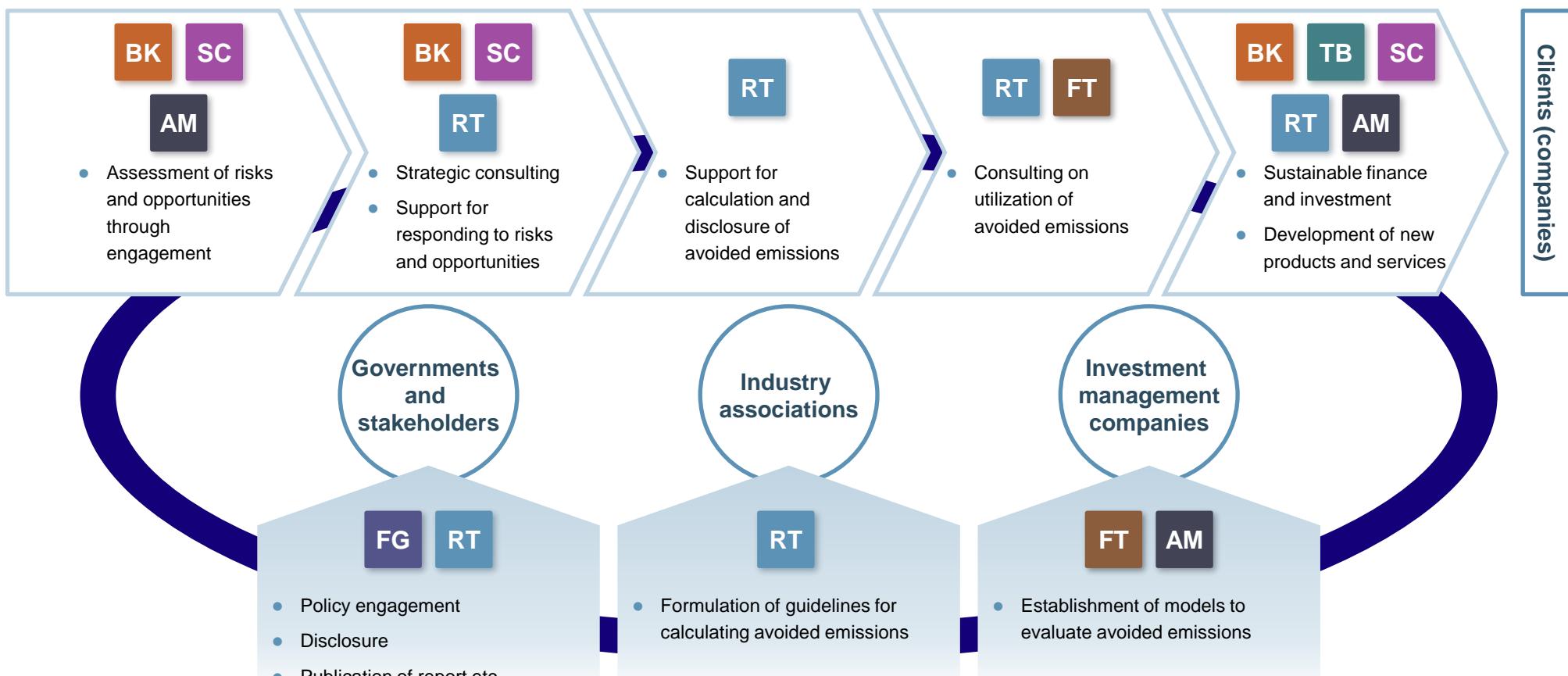




4. Mizuho's achievements in avoided emissions area

- Mizuho has built a value chain for AE and contributes to establishment of its rules and evaluation models.
- We also provide full support to our clients for AE pre-assessment, measurement/disclosure support, and financing.

Mizuho's value chain for avoided emissions ^{*1}



Mizuho's value chain for avoided emissions

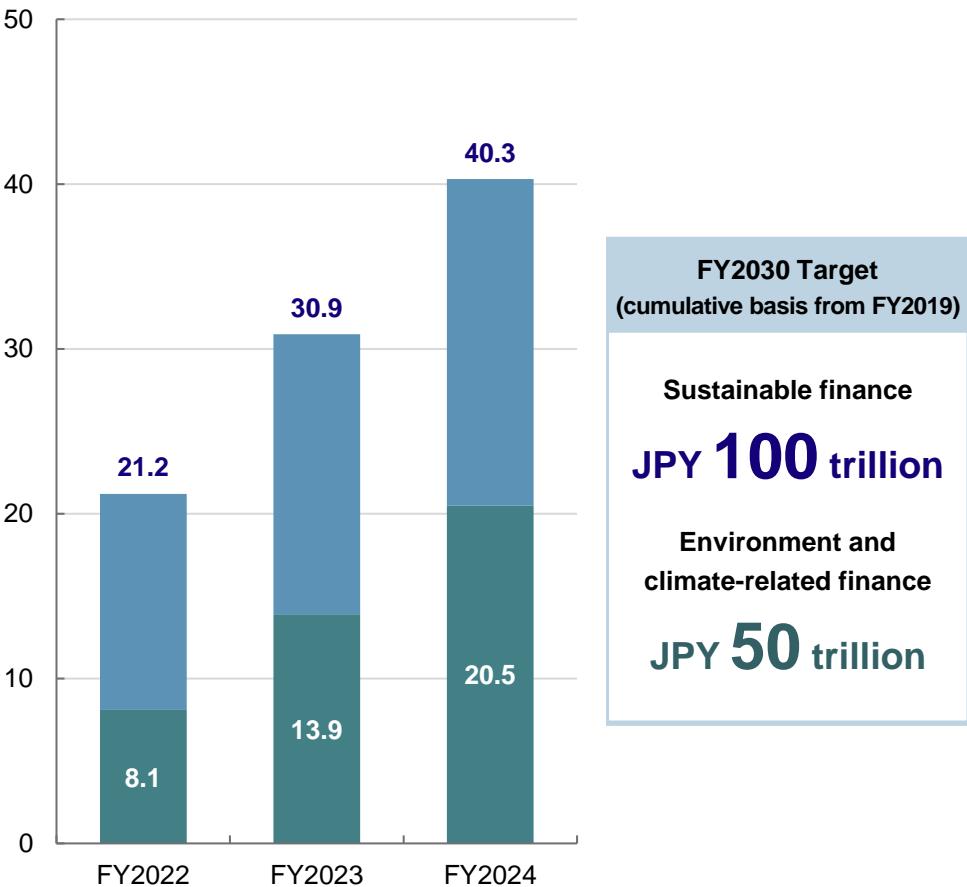
*1: FG: Mizuho Financial Group, BK: Mizuho Bank, TB: Mizuho Trust & Banking, SC: Mizuho Securities, RT: Mizuho Research & Technologies, FT: Mizuho-DL Financial Technology, AM: Asset Management One.

Sources: Mizuho Financial Group.

- Mizuho has set a sustainable finance target ^{*1} of JPY 100 trillion, of which JPY 50 trillion is earmarked for environment and climate-related finance, recognizing our important role is to respond to the enormous financing needs for climate change.

Sustainable finance target and amount

(Amount of sustainable finance: trillion JPY; cumulative basis from FY2019)



League table

Global



**Sustainable finance
(loans)**

(April 2024 to March 2025)

Japan



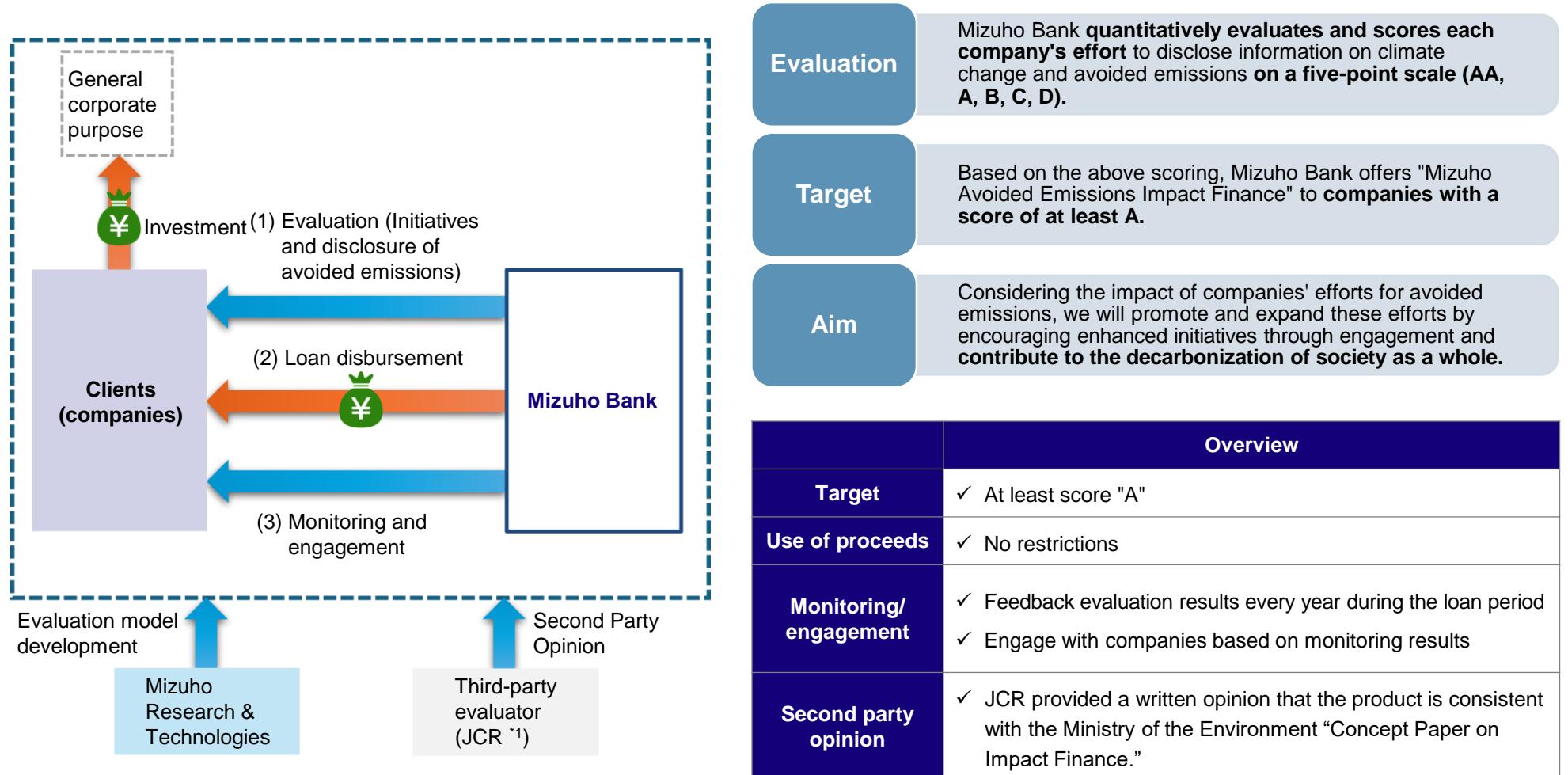
**Publicly offered
SDGs bonds**

(April 2019 to March 2025)

■ Total amount of environment and climate-related finance

- In October 2025, Mizuho leveraged the group's expertise to develop its own financing products specializing in AE.
- Through these products, we aim to meet the financing needs of clients and contribute to the promotion of AE.

Scheme and overview of Mizuho avoided emissions impact finance



- Based on the expertise of Mizuho Research & Technologies, we established evaluation items to promote GHG emission reduction and AE.
- Mizuho structured its first AE impact finance deal for Kawasaki Heavy Industries.

Evaluation items for GHG emission reduction and AE

- **Eleven evaluation items** were established, including the evaluation of GHG emission reduction (Scope 1, 2, 3) which is the basis for avoided emissions, and the disclosure and target of avoided emissions which indicate the company's contribution to a decarbonized society.
- The evaluation items for avoided emissions are determined with reference to the requirements of the WBCSD and GX League guidance on avoided emissions and based on the expertise of Mizuho Research & Technologies.

Field	Evaluation items	
Commitment of corporate management	1	SBT approval/commitment status
	2	Content of medium- to long-term environmental vision for GHG emissions
	3	Ambition level of medium- to long-term environmental vision for GHG emissions
	4	Setting of Scope 3 targets
Disclosure and results of GHG emissions	5	Disclosure and results of GHG emissions (Scope 1, 2)
	6	Disclosure of GHG emissions (Scope 3)
Disclosure and target setting for avoided emissions	7	Disclosure of mitigation and management of significant negative impacts
	8	Disclosure of avoided emissions
	9	Disclosure of solutions for avoided emissions
	10	Disclosure of baseline for avoided emissions
	11	Setting of avoided emissions target

Case study of Kawasaki Heavy Industries (first project)

- In order to reduce CO₂ emissions during the use of the sold products, Kawasaki Heavy Industries (KHI) has improved their energy efficiency, replaced existing products through electrification and modal shifts, and expanded its lineup of products that use waste and renewable energy.
- The products sold by KHI in FY2024 reduced CO₂ emissions by approximately 19.05 million tons.
- In addition to the quantitative value of avoided emissions, the calculation method and target products are disclosed in an easy-to-understand manner.

Disclosure of major AE-related products

Aerospace Systems	Energy System & Plant Engineering
■ Airplanes and Space <ul style="list-style-type: none"> Boeing 787 (component production) BK117 helicopters 	■ Energy System <ul style="list-style-type: none"> Gas engines for power generation, including the M1A, M5A, and M7A series industrial-use gas turbines Non-heated boilers (plant waste heat, waste incineration waste heat)
■ Jet Engines <ul style="list-style-type: none"> Trent 1000 for the Boeing 787 PW1100G-JM for the Airbus A320neo 	■ Plant Engineering <ul style="list-style-type: none"> LNG tanks Crushing machine plant (CK Mill)
	■ Marine Propulsion <ul style="list-style-type: none"> Marine propulsion systems (E-series Rextpeller[®])
Precision Machinery & Robot	Transportation
■ Precision Machinery <ul style="list-style-type: none"> Hydraulic systems for construction and industrial machinery (K8V Series pumps for HSTs, M7V Series motors for HSTs, KC-MB-20 controller for construction machinery, etc.) High-pressure hydrogen regulators for fuel cell vehicles 	■ Ship & Offshore Structure <ul style="list-style-type: none"> LNG carriers, LPG carriers Ship operation support system (SOPass[®])
■ Robot <ul style="list-style-type: none"> duAro dual-arm SCARA robot, NT420 general-purpose clean robot BX200L spot welding robot, KJ264/314 large painting robots 	■ Rolling Stock <ul style="list-style-type: none"> Standard railcars (efACE[®]) Mainline/switcher diesel electric locomotives
	■ Motorcycle & Engine <ul style="list-style-type: none"> Ninja 250, Ninja ZX-6R, Ninja H2 Z900, Z H2

Press release

- Press release (Japanese version only) for first project in avoided emissions impact finance

NEWS RELEASE

2025年10月31日
株式会社みずほ銀行

川崎重工業株式会社に対する
「Mizuho 制減影響インパクトファイナンス」の実行について

株式会社みずほ銀行（取締役頭取：加藤 勝彦、以下「みずほ銀行」）、川崎重工業株式会社（代表取締役社長執行役員：橋本 真度、以下「川崎重工業」）に対して、「Mizuho 制減影響インパクトファイナンス」（以下「本商品」※1）を本日実行しました。本件は、本商品の第一回実行となります。

本商品は、みずほ銀行サービスカノン（ソリューションズ）株式会社（以下「みずほソリューションズ」）が開発した、川崎重工業が開拓した新たな世界標準となる「SOPass[®]」（以下「SOPass[®]」）を開発した評価手法を用いて、みずほ銀行が川崎の新規事業に対する新規や取り組みを評価した上で、新規を行なう商品です。また、みずほ銀行による新規的なモニタリングとエンゲージメントを通じ、お客さまの新規事業に対する取り組みの拡大を支援しています。

なお、評価手法を用いた本商品のフレームワークについては、株式会社日本橋付研究所（以下「JRI」）から環境部門の「インパクトファイナンスの基本的考え方」に適合する旨の意見書を得て実行しています。

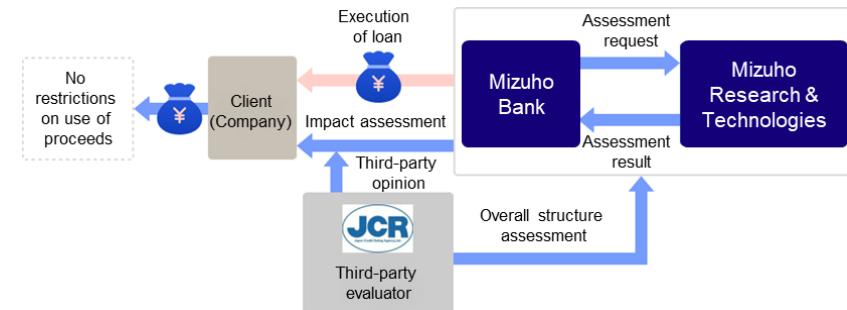
川崎重工業は、2020年のあるべき姿を描いた「ガバーニング2020」においてはカーボンフットプリントを「エキスパート・環境リューションズ」を掲げ、低コストで実現した脱炭素社会の実現を実現を目指す中で、独自の環境影響評価品認証制度（「Kawasaki エコロジカル・プロンティア」）を制定し、実現した製品の認証時のCO₂排出削減量を推進しています。

- AE can be used as a KPI for Positive Impact Finance (PIF) and a sustainability performance target (SPT) for sustainability-linked loans (SLL). Mizuho Bank has a track record of using AE for both PIF and SLL.

Positive impact finance with avoided emissions as KPI

- Positive impact finance involves financial institutions conducting a comprehensive analysis and evaluation of the environmental, social and economic impact of corporate activities (positive and negative impact) based on the Principles for Positive Impact Finance established by the United Nations Environment Programme Finance Initiative (UNEP FI) and procedures consistent with the UNEP FI implementation guidelines, and providing loans with the aim of continuing support for those activities.
- Financial institutions prepare a framework for impact analysis and evaluation, and they monitor the post-lending impact.
- Mizuho Positive Impact Finance uses an evaluation framework developed independently by Mizuho Research & Technologies, which has extensive knowledge of sustainability, to identify the state of a company's sustainability management system and the impact that the company will bring, and to evaluate the KPI and target setting. After implementation, KPI progress will be assessed annually, and recommendations are made to improve impact.
- Mizuho Bank has served as an arranger for Mizuho Positive Impact Finance (syndicated loans) provided to Fuyo General Lease and Tokyo Century Corporation, where avoided emissions were set as a KPI.

Mizuho Positive Impact Finance Scheme



Sustainability-linked loan with avoided emissions as SPTs

- Sustainability-linked Loan is a loan designed to motivate a borrower to meet ambitious SPTs based on the borrower's KPI and to link the loan's terms and conditions to the borrower's achievement of these SPTs.
- By arranging SLL in which avoided emissions are set as the SPT by Mizuho Bank, it is possible to create positive impact and promote transition towards achieving the SPT.
- Mizuho has served as an arranger for SLL to Fuyo General Lease and Tokyo Century Corporation, where avoided emissions were set as SPTs.

- Mizuho Securities supports issuers' efforts to reduce GHG emissions through their business operations and communicate the value of those contributions by structuring sustainable finance using AE as a reporting metric.

COSMO ENERGY HOLDINGS CO., LTD.

Green bond

Issue date	November 2024	Coupon/Tenor	1.425%/7 yrs
Issue amount	JPY 5 billion	External reviewer	R&I *1

- Cosmo Energy Group aims to achieve net zero carbon, including Scope 3, by 2050 in order to contribute to the realization of net zero carbon throughout society. For the medium- to long-term, Cosmo Energy Group has formulated Vision 2030 under the slogan "To create energy that shapes the future, energy that sustains society, and new forms of value." In July 2024, Cosmo Energy Holdings established its first green finance framework to promote the priority themes of Vision 2030.
- Cosmo Energy Holdings issued an SDGs bond for the first time, using the proceeds for the renewable energy generation business, introduction of EVs to Cosmo My Car Lease, storage battery installation, SAF production, synthetic fuel R&D, etc. It plans to report **avoided emissions as a positive environmental outcome**.

Avoided emissions target and resulting emission reduction

Example of reduction targets	<ul style="list-style-type: none"> CO₂ emissions *2 in 2030: 30% cut compared to FY2013 Avoided emissions realized using green power and fuel in 2030: 1.7 million t-CO₂
Reduction results *3 (FY2023)	<ul style="list-style-type: none"> Reduction using green power: 276,000 t-CO₂ Reduction using green fuel: 207,000 t-CO₂
SDGs bond impact metrics	<ul style="list-style-type: none"> CO₂ reduction/avoided emissions (t-CO₂), etc. (Renewable energy, EV, SAF, hydrogen and next-generation energy)

NIPPON STEEL CORPORATION

- Nippon Steel announced its Carbon Neutral Vision 2050 in March 2021. The company aims to provide two benefits: CO₂ emission reduction in society (NSCarbolex® Solution) and CO₂ emission reduction in the steel manufacturing process (NSCarbolex® Neutral).

Utilization of green bond for non-oriented electrical steel sheets (NSCarbolex® Solution)

- Nippon Steel issued its first SDGs bond, to finance production equipment for non-oriented electrical steel sheets for eco-car drive motors, which are part of the "NSCarbolex® Solution." As an environmental benefit, the company disclosed the amount of CO₂ emission reduction based on the total volume of non-oriented electrical steel sheets for eco-car drive motors.

⇒ Disclosure of **theoretical avoided emissions as an environmental benefit**

Green bond

Issue date	March 2023	Coupon/Tenor	0.564%/5 yrs, 1.150%/10 yrs
Issue amount	JPY 50 billion	External reviewer	R&I

Promote efforts to create a market for green steel (NSCarbolex® Neutral)

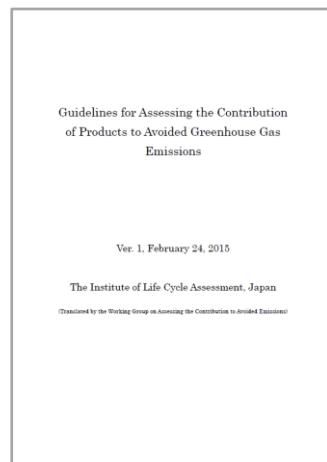
- Challenges in creating a green transformation (GX) steel market
 - Creating value from GX (CO₂ reduction) in the steel industry
 - Promoting and spreading the value from GX (can be provided to all customers using the mass balance approach)
- To promote standardization, Nippon Steel is actively participating in the formulation of guidelines by the Japan Iron and Steel Federation that will enable specific Carbon Footprint of Products (CFP) calculations for steel products and reflecting them in customer product CFPs. The company aims to issue the guidelines by autumn 2025. The company is also working on the following initiatives in parallel.
 - Discussions at worldsteel to reflect the above contents in their guidelines too
 - Proposing and advocating revisions to ISO, GHG Protocol, etc.
 - Discussions on allocated CFP etc. at the Study Group on Utilizing CFP for GX

- Mizuho Research & Technologies (RT) has been involved in the development of various guidelines from the beginning of discussions on AE in Japan.
- It provides a variety of support services to clients, including calculation and review of AE, and preparation of guidelines.

Support for formulation of guidelines and in-house rules on AE

- Mizuho RT has been involved in the initiatives for avoided emissions of the chemical and electrical/electronics industries, which began discussions ahead of other industries, since the early 2010s when avoided emissions were first discussed in Japan generally.
- Mizuho RT participated in discussions with experts and document development as the secretariat of the study group in the guidelines for avoided emissions established by the ILCAJ ^{*1}.
- Based on these achievements, Mizuho RT also provides support services for formulating internal rules for calculating avoided emissions and creates forms to confirm the validity of the calculation results within the company.

ILCAJ guideline (1st: 2015, 2nd: 2022)



AE-related support services and the sectors supported

Support service	Service content	Sectors supported in past few years
Calculation support	<ul style="list-style-type: none"> Provide total support including for the holding of study meetings on the outline of avoided emissions, setting of measurement conditions, and the calculation of avoided emissions. 	Chemicals, electrical and electronics, energy, metallic materials, petroleum refining
Review of calculation result	<ul style="list-style-type: none"> Review avoided emissions results independently calculated by companies from the viewpoint of consistency with various guidelines and validity of Life Cycle Assessment (LCA) evaluation. Support for correct calculation by offering comments from the viewpoint of experts on areas that need improvement. 	Chemicals, electrical and electronics, trading companies
Formulation of guideline for calculating avoided emissions	<ul style="list-style-type: none"> Provide support for the preparation of guidelines that organize calculation methods and approaches within companies and industry sectors. 	Petroleum refining, construction
Other	<ul style="list-style-type: none"> Participate as chair of a review panel to provide advice on the appropriateness of the calculation method and approach for avoided emissions in Asahi Kasei Group's certification of Environment-Contributing Products. 	
	<p>https://www.asahi-kasei.com/sustainability/environment/eco_products/</p>	

- Based on its wealth of knowledge and experience, Mizuho Research & Technologies supports not only the calculation of AE but also the LCA calculation that is the basis for the calculation of AE.

Support service for calculation of avoided emissions

Support service for calculation of avoided emissions

- Mizuho Research & Technologies supports calculation of avoided emissions of products, materials, services, etc.
* Measurement is basically performed by the client.
- Mizuho Research & Technologies supports calculation of avoided emissions and disclosure of the result, referring to the guidelines by the WBCSD, the Institute of Life Cycle Assessment, Japan, and the International Council of Chemical Associations, etc.

- (1) Determine products to be assessed
- (2) Determine products to be compared (baseline)
- (3) Set functional units and assessment scope
- (4) Measure GHG emissions for assessment and comparison targets based on LCA
- (5) Measure differences between GHG emissions under assessment and comparison
- (6) Multiplying the result in (5) by the product's volume penetration

Support 1

- Support clients in implementing appropriate settings in accordance with guidelines

Support 2

- Support clients' calculation of avoided emissions as well as product LCA calculation

LCA calculation related services as a basis for measuring AE

Calculation outsourcing service

- Mizuho Research & Technologies performs LCA and Scope 3 calculations on behalf of the client.

Calculation advisory service

- Mizuho Research & Technologies supports clients' LCA calculation. (provides support as needed regarding calculation conditions, methods, and data collection)
* Calculation is performed by the client.



- AM-One focuses on AE as a metric for assessing the climate-related opportunities and impacts of investee companies.
- We are considering using AE as a metric to evaluate corporate climate-related efforts and seek to promote AE use through engagement.

Our approach to avoided emissions as an asset manager

Under our corporate message of "**Creating a sustainable future through the power of investment,**" Asset Management One aims to support customers' wealth building over the medium to long term, the sound growth of companies, and the realization of a sustainable and prosperous society through investment. We believe that avoided emissions are one of the essential metrics for promoting these efforts.

As an asset manager, when assessing the climate change impact of investee companies, we not only consider risks, but also focus on metrics of climate-related opportunities and the impacts of climate solutions. In particular, we believe that environmentally superior products and services that contribute to GHG reduction are often created through corporate innovation and can be a driver of enhancing corporate value.

Currently, climate-related disclosure standards are being enacted in many countries and regions around the world, and GHG emissions calculated based on the GHG Protocol and other standards are the main disclosure metrics. While GHG emissions are suitable for assessing climate-related risks, we recognize that there are challenges in assessing opportunities. In this context, it is meaningful to use avoided emissions, which have been found to have a positive correlation with sales of environmentally contributing solutions, to evaluate the climate-related opportunities and impacts of investee companies and incorporate these into investment decisions.

Furthermore, in our Net Zero Transition Roadmap published last year, we indicated our intention to strengthen the incorporation of climate change risks and opportunities into corporate assessments for in-house management, focusing on avoided emissions as a metric of opportunities and impacts. For the revision of the PCAF Standard, which is also mentioned in this report, expanding the calculation scope for financed avoided emissions, which are avoided emissions of a portfolio, to all asset classes is being considered. We expect that efforts to calculate and disclose financed avoided emissions will expand among asset managers, and that there will also be an increasing trend to encourage investee companies to calculate and disclose their avoided emissions through engagement.

While avoided emissions are said to have issues with data quality and comparability, it is important that investee companies start to take an interest in avoided emissions and begin to calculate and disclose them. In addition to our existing net-zero engagement, we would like to strengthen engagement on avoided emissions as well. Moreover, by collaborating with various stakeholders, including Mizuho group companies with expertise in avoided emissions, we will cultivate society's understanding of avoided emissions and contribute to their dissemination and expansion.



- Mizuho has been disclosing FAE for project finance in the power generation sector from FY2019.
- We are also considering the adoption of AE as a supplementary metric in the criteria for assessing the degree of transition risk of clients.

Measurement and disclosure of CO₂ avoided emissions in power generation sector portfolio (project finance)

- From 2024, Mizuho began disclosing its CO₂ avoided emissions from the power generation sector portfolio, which had been disclosed on the Mizuho website, in the Mizuho Financial Group "Climate and Nature-related Report."

Column: Measurements of CO₂ avoided emissions in our power sector portfolio (project finance)

Since FY2019, Mizuho Bank has disclosed financed emissions and CO₂ avoided emissions for project finance in the power generation sector based on the PCAF concept.

CO₂ avoided emissions are calculated based on the concept of Avoided Emissions outlined in the PCAF guidance. It measures the reductions in CO₂ emission achieved when power generation shifts from fossil fuels to renewable energy through the renewable power projects financed by Mizuho. This calculation is based on the emission factor of the fossil fuel that has the largest impact on the power generation mix in the project region.

	FY2019	FY2020	FY2021	FY2022	FY2023
Financed Emissions (ktCO ₂)	8,901	8,627	8,765	10,308	10,151
CO ₂ Avoided Emissions (ktCO ₂)	4,349	4,688	4,871	6,390	7,002

Reference — Cumulative avoided emissions from FY2019 to FY2023: 27,300

(See our webpage for the details: <https://www.mizuhogroup.com/sustainability/environment/activity/carbon>)



Considering adoption of avoided emissions as evaluation criteria for client transition status

- In sectors recognized in qualitative evaluations to have high transition risks ^{*1}, Mizuho confirms the status of client transition risk responses through engagement and supports transition steps in a phased manner.
- We are also considering the adoption of avoided emissions as a supplementary metric to GHG emissions in the criteria for evaluating the degree of transition risk of such clients.
- Through engagement and the provision of financial and non-financial solutions, we will continue to support clients in advancing their efforts toward decarbonization and addressing transition risks, thereby improving climate change resilience for both our clients and Mizuho.

- In August 2024, Mizuho established a group-wide AE task force for its sustainability strategy.
- Strategic efforts are being made to further disseminate and expand AE by sharing expertise of each group company.

Avoided emissions task force in Mizuho Impact Business Working Group

- As noted in this report, the revision of standards and guidance on avoided emissions is progressing globally, and interest in avoided emissions is growing among sustainability-related parties. In addition, the disclosure of avoided emissions by Japanese companies is gathering pace.
- Mizuho regards avoided emissions as a metric for utilization in its sustainability strategy, and in August 2024 established a group-wide avoided emissions task force. Mizuho Financial Group, Mizuho Bank, Mizuho Trust & Banking, Mizuho Securities, Mizuho Research & Technologies, Mizuho-DL Financial Technology, and Asset Management One participate in this task force.
- Within the avoided emissions task force, participating Mizuho group companies share their expertise and actively exchange opinions. Strategic efforts are being made to develop and provide financial and non-financial solutions that utilize avoided emissions from both a medium- to long-term and a client perspective, in order to further disseminate and expand avoided emissions adoption.

Avoided emissions task force



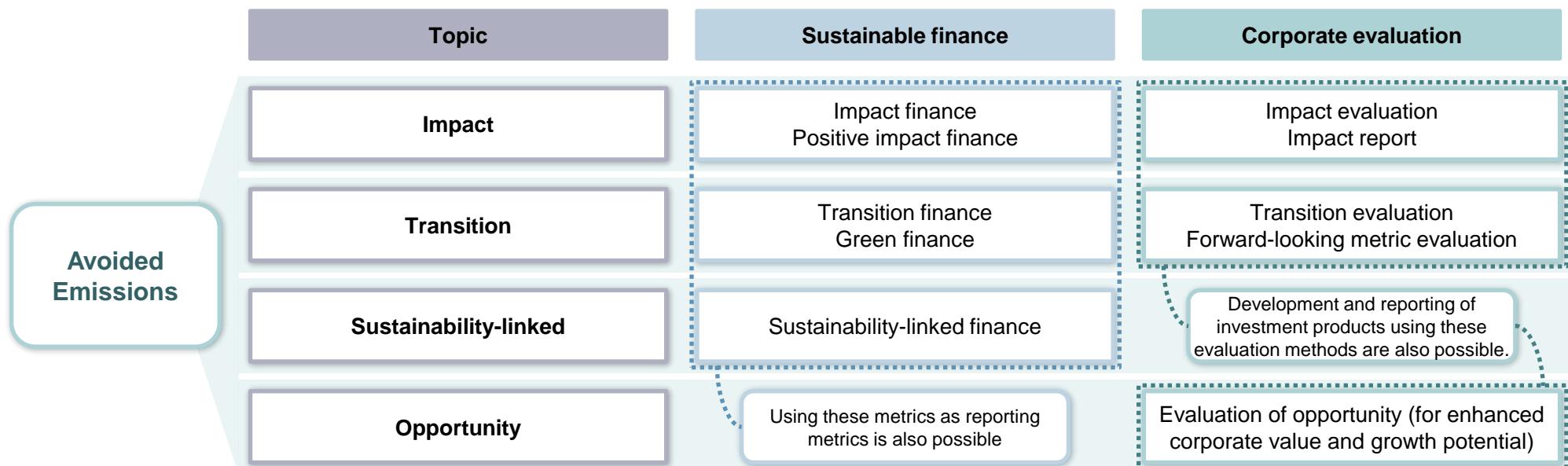


5. Future potential of avoided emissions and Mizuho's initiatives

It is estimated that a huge amount of funding will be needed to achieve the green transformation (GX) and transition worldwide. Mizuho is expected to assist clients in their efforts to achieve their sustainability goals by providing sustainable finance and other services. As described in this report, Mizuho believes that avoided emissions are one of the best metrics for evaluating clients' contribution to decarbonization and climate-related opportunities (for enhanced corporate value). By providing a variety of financial and non-financial solutions utilizing avoided emissions, Mizuho will accelerate the creation of positive impact and realization of the transition.

Mizuho has been focusing on avoided emissions from an early stage, and has implemented unique initiatives related to avoided emissions, such as sustainable finance and consulting, and its own climate-related disclosure. Going forward, Mizuho will continue to leverage its experience and expertise in avoided emissions, as well as the Mizuho group's management resources, and work in cooperation with various stakeholders to further disseminate and promote avoided emissions use around the world and to expand financial and non-financial solutions that utilize avoided emissions.

Utilization and future potential of avoided emissions in sustainable finance and corporate evaluation



The "Mizuho Avoided Emissions Focus Report," published last October, received a great deal of positive feedback and warm words of encouragement. Comments included expression of surprise that a financial institution like Mizuho was focusing so much on avoided emissions and already providing a variety of related financial and non-financial solutions; feedback that Mizuho's report comprehensively and clearly summarizes the characteristics and global trends of avoided emissions, which deepened reader understanding; and organizations stating that they had just been considering calculating and disclosing avoided emissions internally and that Mizuho's report gave them the push they needed to actually do so. Each of these comments has been a great source of encouragement to the Mizuho members involved in drawing up the report and they are the driving force behind our efforts to take on new challenges this year, including creating the report and developing financing and evaluation methods with regard to avoided emissions.

The term "financial institutions" encompasses a wide range of business types, including commercial banks, trust banks, securities companies (investment banks), insurance companies, and asset management companies. When metrics for sustainability disclosure, such as avoided emissions, are discussed, the perspective of secondary market investments (the viewpoint of investors) tend to be prioritized, and high data quality and comparability for metrics are required. However, for corporate clients attempting to calculate and disclose avoided emissions for the first time or seeking to improve the quality of their avoided emissions, the strict requirements for high data quality and comparability can be a significant burden, raising concerns that this could hinder the widespread dissemination and expansion in use of avoided emissions. Furthermore, as noted in this report, while secondary market investments contribute to increasing corporate value through enhanced valuations and influencing investees through engagement and proxy voting, they also do not directly contribute to corporate financing.

Mizuho believes that for metrics like avoided emissions, which are currently subject to voluntary disclosure, have complex calculation and disclosure processes, have numerous guidance requirements, and whose industry-specific guidance is still in the process of being developed, it would be desirable to minimize the burden on clients and proceed with calculation and disclosure in a gradual and realistic manner, while ultimately aiming for high data quality and comparability.

In addition, sustainable finance (from the perspective of loans and primary market investments) enables flexible disclosure of information on a solution/project basis according to a company's diverse business characteristics, and emphasizes evaluation

of individual factors. Avoided emissions can be easily utilized for sustainable finance, and this leads to actual financing and impact creation. Therefore, it is possible to create a virtuous cycle in which both the quality and quantity of avoided emissions can be improved through financing and expansion of products and services by utilizing the funds. As a comprehensive financial group, Mizuho has already built a value chain for avoided emissions that utilizes a variety of functions, including commercial banking, trust banking, securities (investment banking), asset management, and research and consulting. This enables us to assist clients at every stage, from calculating and disclosing avoided emissions to utilizing them.

Furthermore, Mizuho has been considering how we can best contribute as a financial institution to leading the dissemination and expansion of avoided emissions use in the financial industry. Mizuho serves as a member of the PCAF Global Core Team and chairs the Japan Coalition. In addition to activities that contribute to the dissemination and expansion of avoided emissions use, Mizuho has also been working hard to revise the PCAF Standard to expand the scope of measurement and disclosure of financed avoided emissions beyond the current renewable energy project finance to all finance/asset classes. This revision is currently under consideration by PCAF with a view toward finalization. If realized, it is expected that financial institutions will develop and accelerate engagement with companies regarding the calculation and disclosure of avoided emissions, as well as the provision of financial and non-financial solutions, thereby providing a powerful boost to the dissemination and expansion of avoided emissions use.

Standards and guidance related to avoided emissions are steadily being established, and awareness of the importance of avoided emissions is spreading, but there are still many challenges to overcome in order to disseminate and expand avoided emissions. Precisely because of this situation, Mizuho, based on our corporate Purpose to "Proactively innovate together with our clients for a prosperous and sustainable future," will continue to take on new challenges by providing financial and non-financial solutions that utilize avoided emissions, in collaboration with clients and other stakeholders.

We would be extremely happy if this report helps you gain new insights into and utilize avoided emissions. Please look forward to Mizuho's future initiatives for avoided emissions. We sincerely hope to continue working with clients and other stakeholders to realize a sustainable society.

Thank you very much for reading this report to the end.

All members of Mizuho avoided emissions task force

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