



Second Opinion

NTN Corporation

October 6, 2023

Sustainability-Linked Finance Framework

ESG Division
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Rating and Investment Information, Inc. (R&I) has confirmed the alignment of the Sustainability-Linked Finance Framework (the Framework) of NTN Corporation formulated in October 2023 with Sustainability-Linked Bond Principles 2023 of the International Capital Market Association (ICMA), Sustainability-Linked Loan Principles 2023 of LMA, APLMA and LSTA as well as Sustainability-Linked Bond Guidelines 2022 and Sustainability-Linked Loan Guidelines 2022 of the Ministry of the Environment (MOE). This opinion is based on the following views.

■ Outline of the Opinion

(1) Selection of Key Performance Indicator (KPI)

The KPI is "CO2 emissions in Scope 1 and 2 of NTN Corporation's Japan domestic group." NTN Corporation aims to create a society where people and nature are in harmony, and people can live in peace and prosperousness. In line with the NTN Group's basic management policy, NTN Corporation has set out as the realization of a sustainable "NAMERAKA Society." To achieve this goal, NTN Corporation has formulated a roadmap based on the following seven points: "realize carbon neutrality," "contribute to carbon-free society," "contribute to prosperous lives," "environmental protection," "sustainable supply chain," "prosperous human development" and "governance." The KPI/SPT in the Framework are initiatives that contribute to solving these ESG issues. KPI can be continuously measured based on consistent methods and verified by third parties, and are an important indicator to measure the progress of the NTN Group's efforts to achieve a "NAMERAKA Society."

(2) Calibration of Sustainability Performance Target (SPT)

The SPT is "targets for each fiscal year to achieve a 50% reduction in CO2 emissions (compared to FY2018) in Scope 1 and 2 in Japan in FY2030." NTN Corporation's carbon neutrality, including Scope 3, will be achieved in 2050, the same year as the national targets of 46% reduction by 2030 and carbon neutrality by 2050. However, NTN Corporation has set clear and meaningful targets for its own activities, including a 50% reduction in CO2 emissions by 2030 and carbon neutrality by 2035, aiming to move forward. NTN Corporation has been working to reduce CO2 emissions through in-house energy conservation activities. However, in light of future opportunities for business expansion, etc., it is necessary to promote absolute reductions in CO2 emissions by continuing reduction efforts that exceed the previous reduction pace on a per unit sales basis to achieve the target. The SPT set in the Framework is a meaningful and sufficiently ambitious target for the NTN Group.

(3) Bond/Loan Characteristics

For bonds/loans financed under the Framework, the characteristics of the bond/loan will change with the step-up/step-down of interest rate depending on the status of non-achievement/achievement at the time of the SPT determination. Specific details are specified in statutory disclosure documents or loan agreements, etc., for individual financing. It is believed that procurement terms and conditions will be linked to each SPT's achievement status and act as an incentive to achieve the SPT.

Rating and Investment Information, Inc.

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(4) Reporting

Until the sustainability-linked finance is repaid, NTN Corporation plans to disclose the status of achievement of the set KPI against the SPT once a year on its website as the result of its environmental and social activities.

(5) Verification

Regarding greenhouse gas emissions (Scope 1 and 2, energy consumption, and Scope 3), NTN Corporation receives annual third party assurance. The assurance results can be used to confirm the KPI performance of this sustainability-linked finance.

Overview of the Issuer

- A precision equipment manufacturer engaged in research, development, production, and sales of bearings and drive shafts (CVJ), etc. One of the leading bearing companies celebrated its 100th anniversary in 2018. Bearings, the company's main product, are important and precise components that support the rotation of machines. They are used in all kinds of machines, including automobiles, wind power generation equipment, and railway cars, and they support people's lives around the world. NTN Corporation aims to contribute to the solution of social issues surrounding the world and realize a "NAMERAKA Society" where people and nature are in harmony, and people can live in peace and prosperousness.

Bearing

Eco-products supporting all rotating parts to reduce friction



Hub bearing

Bearing that supports the smooth rotation of tires.



"Low Friction Hub Bearing III" that reduces rotational friction by 62%

Driveshaft

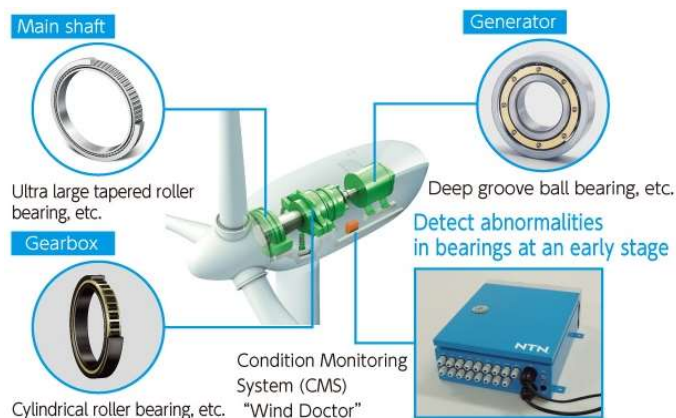
Products that transmit rotation from engine and motor to tires.



High Efficiency Fixed Type CVJ "CFJ" Realize the world's highest level of efficiency during transmitting torque

[Source: NTN Corporation website]

- As the world demands a reduction in CO2 emissions, NTN Corporation is contributing to the development of the renewable energy market by providing bearings for wind power generation equipment, condition monitoring systems (CMS) to monitor their operating status, and renewable energy products that can generate electricity from wind and solar power.



[Source: NTN Corporation website]

- NTN Corporation has set the following targets in its roadmap for realizing a "NAMERAKA Society." NTN Corporation aims to achieve carbon neutrality by working as sustainability-linked finance, targeting Scope 1 and 2 in Japan, which are the core of its activities.

1. Selection of KPI

'Selection of KPI' of the Framework is in conformity with the Principles from the following perspective.

(1) Abstract of KPI

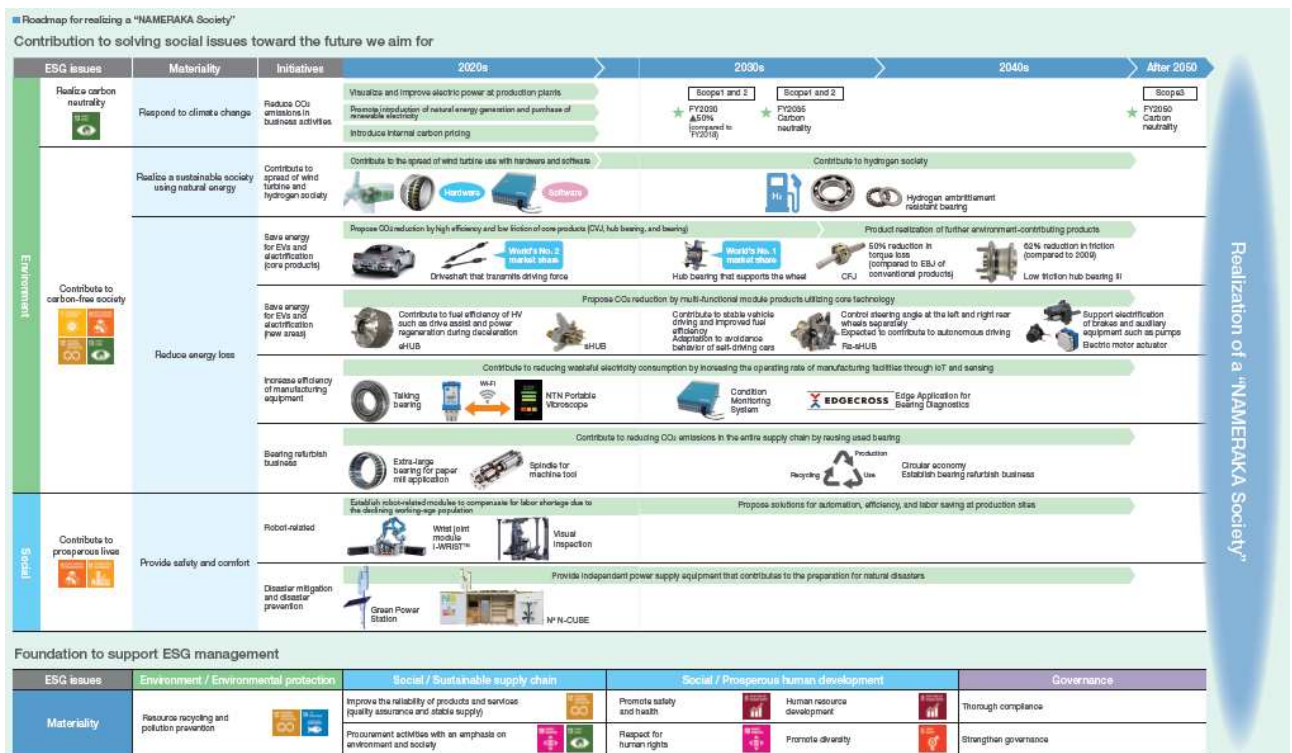
- The KPI is "CO2 emissions in Scope 1 and 2 of NTN Corporation's Japan domestic group." Regarding greenhouse gas emissions (Scope 1 and 2, energy consumption, and Scope 3), NTN Corporation receives annual third party assurance. Continuous measurements based on consistent methods and verification by third parties are available. Historical KPI results are as follows:

(Unit: thousand tons)

	FY2018	FY2019	FY2020	FY2021	FY2022
Domestic CO2 emissions	383	327	276	302	295

(2) Materiality of KPI

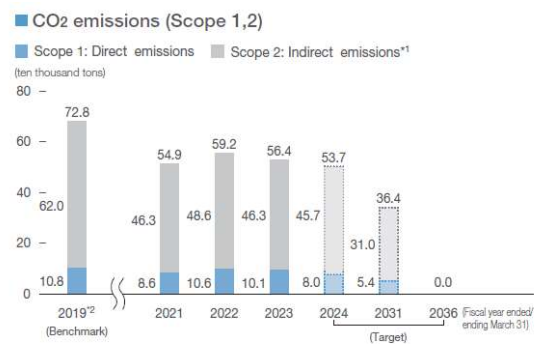
- The NTN Group's basic management policy is as follows: to aim for the realization of a "NAMERAKA Society" through the practice of its corporate philosophy; to conduct business activities with respect for human rights and emphasis on compliance as a company that is trusted and needed by society, including its stakeholders. Based on this policy, NTN Corporation aimed to achieve the 13 materiality targets identified in December 2020, and in December 2021, it created a roadmap for realizing a "NAMERAKA Society."



[Source: NTN Report 2023]

- The roadmap for the realization of a "NAMERAKA Society" consists of a "contribution to solving social issues toward the future we aim for" and a "foundation to support ESG management" as the basis for these activities. It sets forth related materiality and concrete measures based on the following seven ESG issues: "realize carbon neutrality," "contribute to carbon-free society," "contribute to prosperous lives," "environmental protection," "sustainable supply chain," "prosperous human development" and "governance."
- In order to resolve these ESG issues, NTN Corporation has formulated measures to be taken by combining two perspectives. One is the forecast perspective, which identifies the future that can be assumed as an extension of conventional business activities. The other is the backcast perspective, which considers what should be done at any point in time by counting backward from the desired future. NTN Corporation has also set a target of "carbon neutrality by FY2035 (FY2050 including the supply chain)." It will work on environmental contribution by reducing CO2 emissions in its business activities and providing goods and services.

CO2 emission reduction targets (Scope 1 and 2)
50% reduction by the fiscal year 2030
 (compared to the fiscal year 2018)
Achieve carbon neutrality by the fiscal year 2035
CO2 emission reduction targets (Scope 3)
Achieve carbon neutrality by the fiscal year 2050

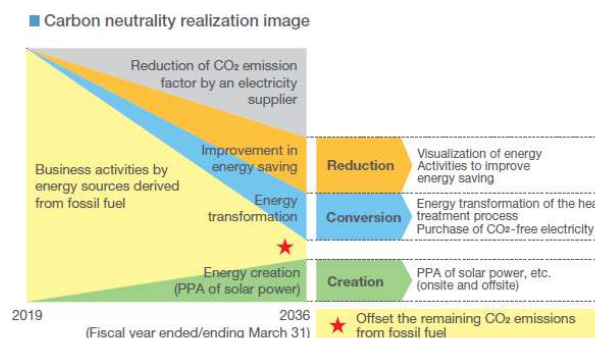


*1 Calculated using emission factors sourced from "Electric Utility Emission Factors" (Ministry of the Environment and the Ministry of Economy, Trade and Industry) in Japanese sites and calculated using emission factors sourced from "Emissions Factors 2022" (IEA) in overseas sites.
 *2 Set the carbon neutral benchmark as fiscal year ended March 31, 2019.

[Source: NTN Corporation]

[Source: NTN Report 2023]

- Regarding the reduction of CO2 emissions in business activities, NTN Corporation will use the following measures: confirmation of electricity usage and planned reduction of CO2 emissions through visualization of electricity consumption in the manufacturing process of products; introduction of solar and wind power generation facilities at business sites; promotion of purchase of renewable energy power at business sites; and internal carbon pricing.
- To "contribute to carbon-free society," NTN Corporation will contribute to the spread and stable operation of wind power generation equipment through the provision of bearings to cope with the increasing size of wind power generation equipment and condition monitoring services using IoT. In response to the electrification and EV shift in the automotive industry, NTN Corporation plans to further improve the efficiency of basic products, reduce their size and weight, and develop multifunctional module products that utilize basic technologies. In this way, the products that NTN Corporation is involved in play an important role in realizing a carbon-free society.
- From the above, KPI is an important indicator to measure the progress of the NTN Group's efforts to achieve a "NAMERAKA Society."



[Source: NTN Report 2023]

2. Calibration of SPT

'Calibration of SPT' of the Framework is in conformity with the Principles from the following perspective.

(1) Abstract of SPT

The SPT is "targets for each fiscal year to achieve a 50% reduction in CO2 emissions (compared to FY2018) in Scope 1 and 2 in Japan in FY2030." The target values for each fiscal year are set by linear interpolation from the targets for FY2030.

(Unit: thousand tons)

Target	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Domestic CO2 emissions	303	287	271	255	239	223	207	191

(2) Ambitiousness of SPT

① Ambitiousness of SPT

- NTN Corporation has been working to reduce CO2 emissions through in-house energy conservation activities, etc. However, in light of future opportunities for business expansion, etc., it is necessary to promote absolute reductions in CO2 emissions by continuing reduction efforts that exceed the previous reduction pace on a per unit sales basis to achieve the target.
- NTN Corporation's carbon neutrality, including Scope 3, will be achieved in 2050, the same year as the national targets of 46% reduction by 2030 and carbon neutrality by 2050. However, NTN Corporation has set clear and meaningful targets for its own activities, including a 50% reduction in CO2 emissions by 2030 and carbon neutrality by 2035, aiming to move forward. The SPT set in the Framework is a meaningful and sufficiently ambitious target for the NTN Group.
- In light of the above factors, the SPT is an ambitious and meaningful target.

② Relevance of Means for Achieving SPT

- The NTN Group is working to reduce CO2 emissions and emission intensity throughout its business activities.
 - Reduction of CO2 emissions generated by processing machines and heat treatment facilities by visualizing energy in the manufacturing process, and reduction of CO2 emissions by improving the efficiency of energy used in utilities such as air conditioning and lighting
 - Reduction of CO2 emissions by energy conversion of heat treatment facilities
 - Reduction of CO2 emissions from fossil fuels by purchasing CO2-free electricity
 - Reduction of CO2 emissions from fossil fuels through solar PPA and other natural energy generation
- With regard to (4) above, NTN Corporation has introduced renewable energy generation facilities for in-house consumption under various schemes (PPA, leasing, and self-investment) at its business sites and is working to reduce CO2 emissions (Scope 2).

An Example of the Introduction of Natural Energy Generation Equipment in Japan

NTN Mie Corp. (Japan) installed a total of 828 solar panels on the roof of a roller factory based on PPA¹. Its operation started in April 2023, and the amount of power produced and CO₂ reduction are expected to be 541,342 kWh/year and 205 tons-CO₂/year², respectively.



Roller Factory (NTN Mie)

An Example of the Introduction of Natural Energy Generation Equipment in Overseas

NTN MANUFACTURING DE MEXICO, S.A.DE C.V. (Mexico) installed a total of 1,180 solar panels on the roof of a factory based on PPA¹. Its operation started in August 2023, and the amount of power produced and CO₂ reduction are expected to be 1,012,000 kWh/year and 403 tons-CO₂/year², respectively.

¹ A contract to install solar power generation equipment owned by a third-party power producer on a roof or other location and purchase its electricity.

² Calculated using emission factors sourced from "Electric Utility Emission Factors" (Ministry of the Environment and the Ministry of Economy, Trade and Industry) in Japanese sites and calculated using emission factors sourced from "Emissions Factors 2022" (IEA) in overseas sites.

Natural Energy Generation Results (Fiscal Year Ended March 31, 2023)

Region	Power generation ² (kWh)	CO ₂ emission reduction (tons-CO ₂)
Japan	1,073,015	430
China	11,961,519	7,348
Total	13,034,534	7,778

Actual Procurement of Renewable Energy (Fiscal Year Ended March 31, 2023)

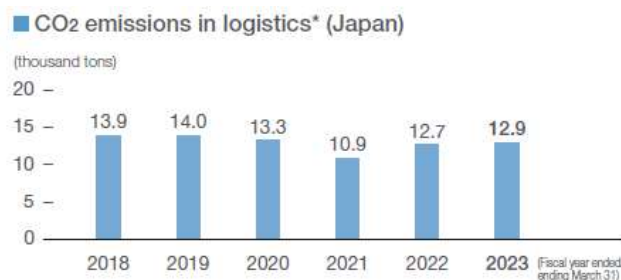
Site name	Energy type	Procurement (kWh)	CO ₂ emission reduction (tons-CO ₂)
Nagoya Sales Office	CO ₂ -free electricity	80,982	31
Hamamatsu Automotive Sales Office		13,077	5
Hiroshima Automotive Sales Office		20,059	11
NTN-AT		13,057,800	4,061
Total		13,171,918	4,108

[Source: NTN Report 2023]

[Reference: Supply chain emissions (Scope 3) reduction]

NTN Corporation has set a carbon neutrality target for FY2050, including supply chain emissions (Scope 3). It is currently conducting Scope 3 calculations for its Japanese business sites using the intensity of the inter-industry relations table. Category 1, "Purchased products and services," which accounts for the largest emissions among all categories, mostly comes from the procurement of steel materials, which are raw materials, and work in process. Work in process consists of such products as semi-finished products, for example, forgings and lathe turning products. NTN Corporation will improve the Scope 3 calculation method by reviewing the intensity used, and will promote activities to identify and reduce emissions in line with actual conditions.

The NTN Group is also working to reduce CO₂ emissions (Scope 3 Category 9) while transporting goods by improving logistics efficiency. Major measures include "shortening the transportation distance by optimizing the distribution route," "improving the loading rate by expanding the use of module outer boxes," "reducing the number of containers by increasing the loading rate on export containers," "promoting the reuse and recycling (repair) of wooden pallets," and "requesting transport operators to stop idling thoroughly."



*Including CO₂ emissions during intra-company transportation

[Source: NTN Report 2023]

③ Contribution to the SDGs

- The initiatives to achieve the SPT will contribute to the following goals:



(3) Relevance of SPT

- Regarding the relevance of the SPT, a Second Opinion has been obtained from R&I, an independent third party.

3. Bond/Loan Characteristics

'Bond/Loan Characteristics' of the Framework is in conformity with the Principles from the following perspective.

- Depending on the status of achievement of the SPT, the characteristics of sustainability-linked finance fluctuate through the step-up/down-down of interest rates. If the SPT is not achieved/achieved, the rate will increase/decrease at the annual rate determined for the SPT at the time of financing from the time of interest payment after the determination date until the next determination. The details of changes will be specifically identified in the contract documents, etc., for the sustainability-linked finance based on the Framework.

<Information on bond/loan characteristics>

- SPT value
 - SPT reporting period, determination date, and basis for determination
 - Loan characteristics: Range of interest rate increase/decrease (annualized)
 - Actions to be taken in the event of other significant events affecting SPT, etc.
- If the calculation and disclosure of the KPI cannot be made by the established determination date, the interest payment shall be made at the increased interest rate or the interest rate at which the preferential interest rate is not applied on the subsequent interest payment date.

4. Reporting

'Reporting' of the Framework is in conformity with the Principles from the following perspective.

- Until the sustainability-linked finance is fully repaid, NTN Corporation plans to disclose the status of achievement of the set KPI against the SPT once a year on its website as the result of its environmental and social activities.

Item number	Reporting details	Reporting timing
1	<ul style="list-style-type: none"> SPY values as of the last day of each year Actual KPI values from the base year (FY2018) 	Until the sustainability-linked finance is fully redeemed, information is publicly announced on the issuer's website annually.
2	Disclosure of independent third-party verification reports on KPI achievement status	
3	Provision of information that may affect the achievement of SPT (Setting and updating sustainability strategies, formulation and implementation status of action plans, etc.)	

- NTN Corporation will review and update the Framework as deemed necessary, such as when it becomes necessary to modify the SPT due to changes in sustainability strategies or revisions in reduction results/targets, etc. In addition, the application policy for loans in connection with framework review, etc., shall be determined through consultation with the lender.

5. Verification

'Verification' of the Framework is in conformity with the Principles from the following perspective.

- Regarding greenhouse gas emissions (Scope 1 and 2, energy consumption, and Scope 3), NTN Corporation receives annual third party assurance. The assurance results can be used to confirm the KPI performance of this sustainability-linked finance.

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[Expertise and Third-Party Characteristics]

R&I has launched the R&I Green Bond Assessment business in 2016, and since then, R&I has accumulated knowledge through numerous evaluations. Since 2017, R&I has been participating as an observer in the Green Bond Principles and Social Bond Principles, which have their own secretariat at the International Capital Market Association (ICMA). It also has been registered since 2018 as an Issuance Supporter (external review entity) of the Financial Support Programme for Green Bond Issuance, a project by the Ministry of the Environment.

The R&I assessment method and results can be found on the R&I website (<https://www.r-i.co.jp/en/rating/esg/index.html>).

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