Achieving Net-Zero for a Green and Sustainable Future

Environment

Public expectations for environmental protection are growing along with the responsibilities of ICT companies for engaging in these activities. We have established and announced our Environmental Statement and New Environmental Goals and are pursuing a multifaceted approach focused on the three themes of promoting a decarbonized society; developing a closed-loop society; and co-existing with nature, including the preservation of biodiversity.

In March 2024, we renewed the previously established Eco Strategy 2030 as the New Environmental Goals to respond to a rapidly changing global environment and accompanying social conditions. These updated goals strengthen various targets, including achieving carbon neutrality by fiscal 2030*1 and net-zero by fiscal 2040*2. Along with reducing the environmental impact of our own business activities, we are also committed to reducing environmental impact across our supply chain and society as a whole, striving to achieve both solutions to environmental challenges and sustainable economic development.

*1 Targeted GHG Protocol: Scope 1 (direct emissions of greenhouse gases from our own sources) and Scope 2 (indirect emissions from the use of electricity, heat, and steam supplied by other companies)
*2 Targeted GHG Protocol: Includes Scope 1, 2, and 3 (indirect emissions other than Scope 1 and 2, such as emissions from other companies related to the organization's activities).

Targeted SDGs

Priority Activities

› 045 Environmental Management
› 053 Promotion of a Decarbonized Society
› 069 Development of a Closed-loop Society
› 072 Co-existing with Nature
› 079 Prevention of Environmental Pollution

Environmental Management

Basic Philosophy and Vision

While emphasizing the philosophy in the NTT Group Global Sustainability Charter, established by the NTT Group, our environmental protection activities take shape as the NTT Communications Group Global Environmental Charter, Environmental Statement, and New Environmental Goals which applies the philosophy to the characteristics of our business. We set initiative goals and implement measures on an ongoing basis.

NTT Communications Group Global Environmental Charter

The NTT Group has established the NTT Group Global Sustainability Charter to promote Groupwide consideration and actions relating to environmental protection from a global perspective. This policy forms the basis for the NTT Communications Group Global Environmental Charter, which is disseminated among employees of the Group as a set of guidelines for the implementation of environmental protection activities.

For more information on the NTT Communications Group Global Environmental Charter, see:
https://www.ntt.com/en/about-us/csr/sustainability/policy/environment/details.html

Environmental Statement and New Environmental Goals

Under the NTT Communications Group Environmental Statement and New Environmental Goals, established in line with the policies of the NTT Group and NTT DOCOMO Group, we have continued to strengthen our environmental activities while closely monitoring global trends. The environmental statement outlines three key themes for a future in which people and the planet remain in harmony: Realizing a Decarbonized Future, Implementing Closed-loop Recycling, and Planning a Future of Natural Harmony. The new environmental goals set specific objectives for these three themes, and all employees are united in working toward these environmental efforts.

The NTT Communications Group Environmental Statement

We are dedicated to global environmental management for a future in which people and the planet remain in harmony, and

we will address three futures by providing technologies and services that pioneer eras.

Realizing a Decarbonized Future

We are contributing to the reduction of CO_2 emissions and facilitating adaptation to climate change risk.

Implementing Closed-Loop Recycling

We are working toward more effective resource allocation.

Planning a Future of Natural Harmony

We are contributing to the preservation of ecosystems.

New Environmental Goals
(Set in March, 2024)

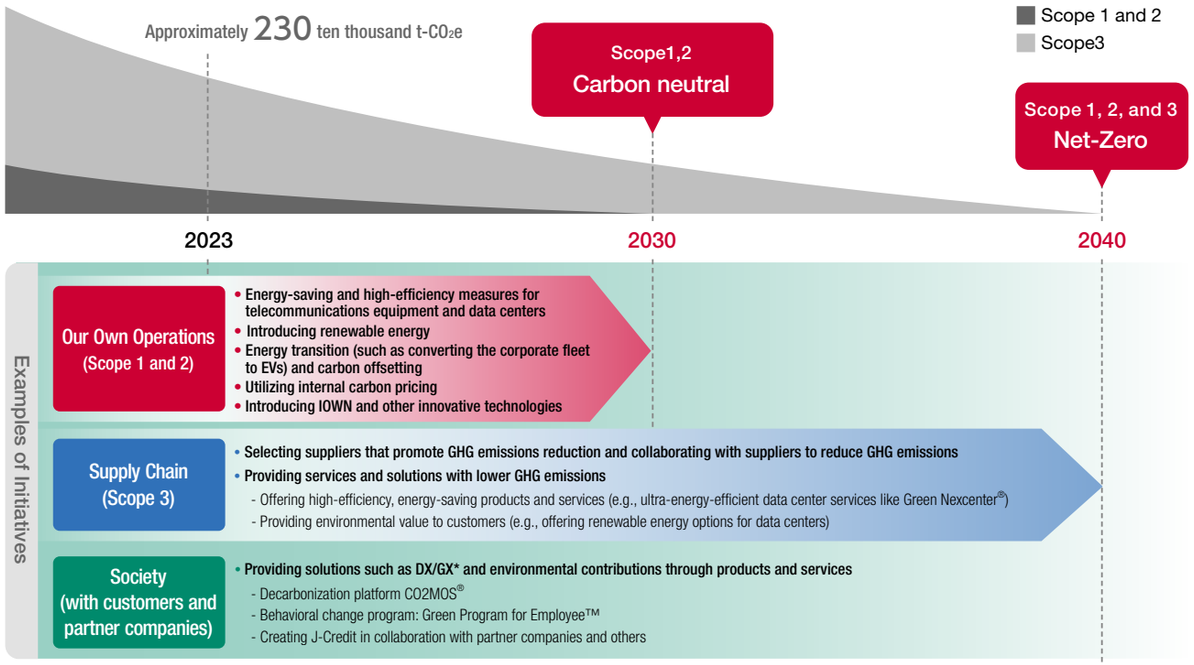
Three Futures We Are Targeting	Items	Target FY	Targets
Realizing a Decarbonized Future	Reducing GHG emissions from the Company (Scope1 and2)	2030	Carbon neutral (Scope 1 and 2)
	Reducing GHG emissions across the supply chain (Scope 1, 2, and 3)	2040	Net-Zero (Scope 1, 2, and 3)
	Conversion rate of our corporate fleet to EVs in Japan (%)	2030	100%
		2025	50%
	Power efficiency of telecommunications operators	2030	At least 10 times (compared to FY2013)
Implementing Closed-loop Recycling	Landfill waste disposal ratio	2030	At least 99%
Planning a Future of Natural Harmony	Promotion of activities to preserve ecosystems	2030	Ecosystem preservation activities

* The scope of these targets, set in March 2024, encompasses NTT Communications Corporation and 18 Group companies.

Realizing a Decarbonized Future for Society

In May 2023, the NTT Group announced its new medium-term management strategy for achieving carbon neutrality by fiscal 2040 with net-zero emissions from its own operations as well as from its supply chains (Scope 3). The NTT DOCOMO Group subsequently declared in November 2023 its commitment to the Net-Zero by 2040 plan under its slogan “Saving Our Planet With You. ” In its New Environmental Goals, formulated in March 2024, the NTT Communications Group set the goal of achieving carbon neutrality by fiscal 2030 (Scope 1 and 2), in addition to striving for net-zero by fiscal 2040 (Scope 1, 2, and 3). Furthermore, the NTT Communications Group will work with customers and partner companies to promote decarbonization across society, going beyond Scope 1, 2, and 3.

[Roadmap to Net-Zero by Fiscal 2040]



*DX: Digital transformation, GX: Green transformation

Risks and Opportunities

We believe that a company’s response to environmental issues such as climate change not only represents a risk to business, society, and the planet but also opens up new opportunities for business growth and the strengthening of corporate structure and resilience.

The NTT Communications Group’s business inherently includes activities that contribute to the emission of GHGs and waste, thus placing a certain level of burden on the planet’s environment. In this context, without proper management and timely efforts to address and disclose environmental issues, including climate change, we risk not only criticism from society for greenwashing* but also the weakening of our corporate reputation and competitiveness. Furthermore, there is a potential risk to the sustainability of the planet, such as GHG emissions that accelerate global warming, and the illegal dumping of industrial waste.

On the other hand, as society’s awareness of environmental issues rapidly increases, we believe that offering services and solutions with lower GHG emissions, as well as DX/GX products that contribute to reducing society’s overall GHG emissions, will lead to business expansion. As an ICT company that provides cutting-edge technologies and services, the NTT Communications Group will contribute to addressing societal challenges, including environmental issues, by promoting more advanced and symbolic initiatives, thereby enhancing its corporate value.

* A form of misleading environmental marketing

Promotion Framework for Reducing Environmental Impact

In order to continuously promote environmental protection initiatives in a Groupwide effort, we have established the Global Environmental Protection Subcommittee within the Sustainability Management Committee, headed by the executive vice president, serving as the dedicated officer for sustainability promotion. We have also formed issue-specific working groups to address environmental challenges as a unified NTT Communications Group. The Global Environmental Protection Subcommittee formulates an overall plan that encompasses a wide range of issues, including the reduction of greenhouse gas emissions and waste, shares information on the results of actions taken, and promotes the horizontal deployment of various initiatives.

Sustainability Office coordinates responses to the TCFD and TNFD and related activities of the NTT DOCOMO Group as a whole, along with other issues, under the Group's sustainability management.

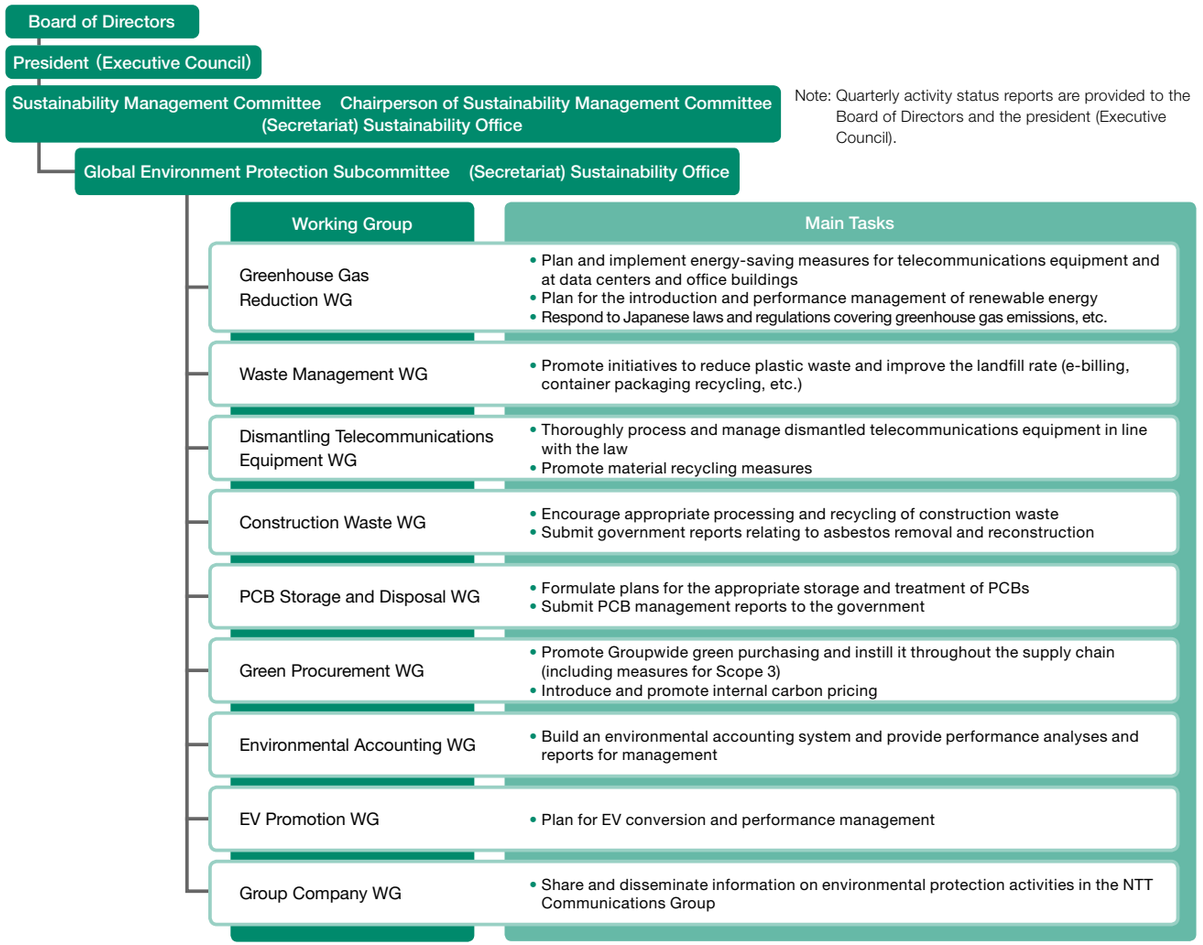
We believe that our approach to environmental issues is a key aspect of our business risk management. To that end, our Business Risk Management Committee, consisting of the executive vice president and other senior executives, assesses all potential risks and discusses appropriate measures to address them.

We will continue to improve our management systems as necessary to more effectively respond to environmental trends.

P.009 For more information on our approach to sustainability management, see the "Sustainability Management" section in the report.

P.010 For more information on our approach to business risk management, see the "Risk Management" section in the report.

[Environmental Protection Framework]



Note: Quarterly activity status reports are provided to the Board of Directors and the president (Executive Council).

(As of March 31, 2024)

Environmental Impact of Business Activities

Fiscal 2023 Material Flow

Environmental Impact of Business Activities

INPUT

Energy	Power	4.3 hundred million kWh
	Renewable energy-derived power	2.5 hundred million kWh
	Heat	260 ten thousand MJ
	Gas	11 ten thousand m³
	Fuel	175 ten thousand liters
Water resources	Water	31.3 ten thousand m³

Telecommunications Equipment and Data Centers

OUTPUT

GHG emissions	Power (CO_2)	7.2 ten thousand t-CO_2
	Heat (CO_2)	0.0*2 ten thousand t-CO_2
	Gas (CO_2)	0.0*2 ten thousand t-CO_2
	Fuel (CO_2)	0.5 ten thousand t-CO_2
	GHGs other than CO_2	0.5 ten thousand t-CO_2e
Wastewater	Total wastewater volume	31.3 ten thousand m³
Waste generated and recycled*	General waste generated	432 t
	General waste recycled	421 t
	Industrial waste generated	1,213 t
	Industrial waste recycled	1,210 t

INPUT

Energy	Power	0.3 hundred million kWh
	Renewable energy-derived power	0.1 hundred million kWh
	Heat	3,393 ten thousand MJ
	Gas	1 ten thousand m³
	Fuel (excluding automobile)	0.3 ten thousand liters
	Fuel (automobile)	20.7 ten thousand liters
Water resources	Water	10.9 ten thousand m³
Others (office supplies)	Office paper	176 t
	Recycled paper and eco-friendly pulp	173 t
	Invoices	123 t
	Brochures	13 t

Offices

OUTPUT

GHG emissions	Power (CO_2)	1.2 ten thousand t-CO_2
	Heat (CO_2)	0.2 ten thousand t-CO_2
	Gas (CO_2)	0.0*2 ten thousand t-CO_2
	Fuel (excluding automobile) (CO_2)	0.0*2 ten thousand t-CO_2
	Fuel (automobile) (CO_2)	0.0*2 ten thousand t-CO_2
	GHGs other than CO_2	0.0*2 ten thousand t-CO_2e
Wastewater	Total wastewater volume	10.9 ten thousand m³
Waste generated and recycled*1	General waste generated	315 t
	Plastic waste generated	19 t
	General waste recycled	303 t
	Industrial waste generated	297 t
	Plastic waste generated	28 t
	Industrial waste recycled	297 t

Scope: NTT Communications Corporation and 18 Group companies

*1 We separate waste insofar as possible to improve the recycling rate. Note that waste volumes in this table do not include construction waste.
*2 Less than 0.05

Environmental Accounting in Fiscal 2023

The NTT Communications Group tabulates its environmental conservation costs (categories corresponding to business activities) and the economic benefit associated with its environmental conservation activities (actual benefits) in line with the Environmental Accounting Guidelines 2005*1, issued by the Ministry of the Environment, and the NTT Group Environmental Accounting Guidelines.

The total amount of environmental conservation cost in fiscal 2023 was approximately 28.6 hundred million yen (–7.8 hundred million yen compared to fiscal 2022), consisting of around 15.5 hundred million yen in investments and about 13.0 hundred million yen in expenses. The economic benefits associated with environmental conservation activities were about 548 hundred million yen (–11.8 hundred million yen compared to fiscal 2022). Both the environmental conservation costs and the economic benefits associated with environmental conservation have decreased significantly due to the organizational restructuring carried out in July 2022 with the NTT DOCOMO Group. As part of this restructuring, environmental accounting-related operations and assets were transferred from the NTT Communications Group to the NTT DOCOMO Group, resulting in a significant overall reduction.

On the other hand, based on reference values excluding the impact of the organizational restructuring, environmental conservation costs (expenses) increased by 100 million yen over fiscal 2022, primarily due to increased pollution prevention costs associated with the disposal of iron towers containing low-concentration PCBs in paint. However, the environmental conservation costs (investments) and the economic benefits associated with environmental conservation measures remained virtually unchanged compared to fiscal 2022.

[Environmental Conservation Costs (Categories Corresponding to Business Activities)] (Millions of Yen)

Category	Key Measures		Investment		Expenses*2	
			FY2022	FY2023	FY2022	FY2023
(1) Business area cost			2,234	1,344	1,250	1,194
Breakdown	Pollution prevention costs	Oil tank facility for power generator use Management of items using PCBs	353	148	76	200
	Environmental conservation costs	Measures to reduce GHG Emissions resulting from electricity use	1,881	1,196	467	312
	Resource circulation costs	Waste disposal and reuse expense	0	0	707	682
(2) Upstream/downstream costs	Measures to recover, recycle, and reuse telecommunications equipment		39	209	1	1
(3) Administration costs	Environmental conservation management activities		0	0	79	94
(4) R&D costs	Allocated portion of the NTT Group's environmental R&D costs		0	0	23	8
(5) Social activity costs	Costs of supporting volunteer participation		0	0	7	4
(6) Environmental remediation costs			0	0	0	0
Total*3			2,272 (1,549)	1,553	1,360 (1,205)	1,302

*1 For the Environmental Accounting Guidelines 2005, please see:
https://www.env.go.jp/en/policy/ssee/eag05.pdf

*2 Not including depreciation
*3 Figures in parentheses are provided as reference values calculated based on the boundaries set by the organizational restructuring in 2022.

[Economic Benefits Associated with Environmental Conservation Activities (Actual Benefits)] (Millions of Yen)

Category	Key Measures	FY2022	FY2023
Revenue	Revenues from sales (cables, metal scrap, etc.)	341	140
Cost reduction	Reductions in expenses as a result of measures such as those related to reducing electricity use	691	305
	Reductions in purchase cost as a result of reusing dismantled telecommunications equipment	174	103
	Decrease in postal and paper costs due to increased use of My Page (online account page)	521	0
	Others	4	0
Total*		1,731 (552)	548

Period: April 1 to March 31 of each year
Tabulation and disclosure:
Figures were tabulated in line with the Ministry of the Environment's Environmental Accounting Guidelines 2005 and the NTT Group Environmental Accounting Guidelines. Expenses include personnel expenses but exclude depreciation.
* Total in parentheses is provided as a reference value calculated based on the boundaries set by the organizational restructuring in 2022.
(Scope: NTT Communications Corporation and 18 Group companies)

Environmental Management Initiatives

Acquiring ISO 14001 Certification

Three companies in the NTT Communications Group have acquired ISO 14001 certification as of March 31, 2024. We have contracted outside environmental consultants to perform annual internal audits of the certified companies and departments in order to ensure the appropriate implementation of environmental management and continual improvements that will allow for a steady reduction of the environmental impact of business activities. Regular reviews and renewal examinations are undertaken by an independent certification body as well. Outstanding issues are thus identified, and remedial measures are taken swiftly. Besides our initiatives centering on reductions of office paper and electricity use and the promotion of waste recycling, we encourage the adoption of measures aimed at creating an environmentally friendly society.

[Companies Certified under ISO 14001*1]

Organizations Certified		Date Certified
NTT Communications Corporation*2	Procurement & Billing	October 1999
	Business Solution Division - Solution Services	March 2004
NTT Com DD Corporation		June 2012
NTT PC Communications, Inc.	Technology and Operations Development Division - SO Delivery Team, System Monitoring and Maintenance Team, ISO Team, Development and Operations Group, Customer Service Department - Service Practical Application Team, Development and Operations Group, Service Development Department	November 2003
	Corporate Business Promotion Division - Solution and Service Department - Supplier Business Team, Solution Design Section	

(As of March 31, 2024)
*1 Percentage of employees or target organizations to total Group employees: 12%
*2 Percentage of employees of target organizations to total employees: 22%

Promoting Groupwide Environmental Management

Guided by its Global Environmental Charter, the NTT Communications Group shares PDCA and other reports at the Global Environmental Protection Subcommittee, an organization under the Sustainability Management Committee. These reports outline details of the various initiatives administered by the nine working groups that drive the Group's environmental protection efforts. In addition to sharing information and calling for the further development of effective initiatives, we are promoting environmental management on a Groupwide basis.

Compliance with Environmental Legislation and Regulations

The NTT Communications Group is committed to ensuring legal compliance and proper risk management while liaising closely with the other NTT Group companies. All legislation, including environmental laws and regulations aimed at curtailing pollution, emissions standards, and the PRTR Law*, is fully communicated to related departments, and independent guidelines and enhanced compliance education have been established for in-house application. We were not involved in any litigation or legal violations pertaining to environment-related accidents, infringements, fines, or complaints in fiscal 2023.

We will continue our Companywide efforts to prevent pollution and comply with related laws and regulations.

* Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Promoting Green Procurement

We are promoting green procurement by expanding our GHG emissions reduction targets across the supply chain toward achieving net-zero by 2040.

The evaluation criteria for procurement are based on the NTT Docomo Green Procurement Guidelines, which clearly specify factors in our set of criteria applied when selecting suppliers, such as the supplier's actions toward environmental conservation and the environmental conservation elements of the procured items.

Reducing GHG emissions in Scope 3, specifically Categories 1 and 2, requires collaborative efforts with suppliers across the entire supply chain. We have therefore completed the visualization of emissions for suppliers representing over 80% of our total procurement volume, after engaging discussions on achieving the net-zero goal with them and providing CO2MOS® emissions visualization services. We will continue to promote this visualization effort while also requesting their cooperation to reduce emissions and adding SBT*-aligned initiatives to the RFP criteria for procurement. By 2030, we will complete the visualization of key suppliers with significant procurement volumes and accelerate the realization of net-zero across the entire supply chain.

To further raise awareness, we have made the related guidelines available on the official NTT Communications website.

Through our efforts for procuring products taking into account their impact on the environment under the Green Procurement Standards, we will work to improve our environmental protection activities with our suppliers and seek to commit to further social contribution.

*Abbreviation for Science Based Targets. Companies set these greenhouse gas emissions reduction targets to align with the levels defined in the Paris Agreement.

Utilization of Internal Carbon Pricing

NTT Communications has been utilizing internal carbon pricing (ICP) since September 2022 to guide investment decisions. For example, we applied an internal carbon price (6,500 yen/t-CO_2) in fiscal 2023 when investing in capital equipment that can reduce GHG emissions. More specifically, ICP is applied for procuring network equipment and other necessary items. To accelerate emissions reduction efforts, we revised the internal carbon price in August 2024 (from 6,500 yen/t-CO_2 to 19,000 yen/t-CO_2). Moving forward, we will expand the scope of the ICP system to the emissions from the respective suppliers as well as the products themselves. This will allow us to evaluate suppliers who are actively reducing emissions with the ultimate goal of achieving net-zero across the entire supply chain.

Fostering a Sense of Environmental Stewardship

We offer all employees environmental education with the intention of raising their awareness of environmental matters. We are also proactive in environmental awareness activities as part of our sustainability efforts, extending the scope of participation to include not only employees but also their family members and our business partners.

In fiscal 2023, we held workshops on ESG management, non-financial information disclosure, and biodiversity initiatives in addition to conducting sustainability training for all employees (95.6% attendance). We also shared articles on our environmental activities with employees to deepen understanding of domestic and international social trends such as the SDGs, ESG investment, decarbonization efforts, and global risks.

● Hosting Employee-participatory Decarbonization Events

In July to October 2023, we hosted the ONE TEAM CHALLENGE, a participatory eco-action campaign aimed at promoting corporate decarbonization efforts, based on the internal campaign implemented by NTT Communications in fiscal 2022, to encourage actions that drive CO_2 emissions reduction. This initiative was jointly organized by NTT Communications and NTT Comware to join the national “Decokatsu ” movement, led by the Ministry of the Environment, to create a lifestyle toward decarbonization. We invited participation from different industries, and a total of 13 companies and 1,348 employees joined the challenge. In addition, approximately 30,000 eco-actions were implemented, resulting in a reduction of around 15 tonnes of CO_2 emissions. Furthermore, feedback from about 80% of the participants indicated that their awareness of the environment had improved.

During the event, we implemented visualization of participant environmental actions using Green Program® for Employee, an app provided by NTT Communications that enables company users to enhance employee environmental awareness and behavior change. We also used NTT Comware’s Stats™, a tool for aggregating and analyzing corporate environmental behavior data, allowing for comparative evaluations across companies and industries, and we provided feedback on environmental behavior trends among employees of each company and supported external communications.

[Poster for One Team Challenge, a Participatory Eco-action Campaign for Participating Companies]

[Screen Images of Corporate Environmental Behavior Data Aggregation and Analysis]

Raising Employee Awareness

We visualize electricity and paper usage, waste generation, recycling rates, and GHG emissions at each office and internally distribute this information every month to raise employee awareness.

As the value of coexistence with nature grows throughout society, in fiscal 2023 we have carried out a range of environmental awareness and educational activities, including cleaning up around our offices in ways that allow employees to easily participate, collecting PET bottle caps for donation, and preserving woodlands by maintaining trees and growing rice and vegetables year-round.

[Chiyoda Ward Cleanup Day]

[Shirai Woodland Preservation Project]

Development of GX Talent for Decarbonization

The NTT Group is focusing on the development of GX talent, with the goal of nurturing individuals who possess specialized knowledge to drive decarbonization within the Group and lead internal initiatives.

The NTT DOCOMO Group is actively recruiting Caboneu Ambassadors from among Group employees nationwide to promote proactive information dissemination and voluntary actions at each company site. In fiscal 2023, about 800 Caboneu Ambassadors advanced the internal dissemination of these efforts. In fiscal 2024, the Group launched the Environmental Skill Development Program for developing GX personnel with specialized knowledge and skills to support both business and sustainability initiatives. We seek to enhance our corporate value by utilizing these environmental skills and expanding opportunities for employees.

Against this backdrop, NTT Communications has been selecting GX Catalysts to lead GX business initiatives since fiscal 2022. A total of 39 individuals were trained by the end of fiscal 2023 through comprehensive internal and external training programs, learning everything from the basics of GX to about industry-specific trends and other latest developments. Ongoing efforts are enhancing their capabilities and further spreading GX across the Company, including through the exchange and sharing of information via internal social media platforms. By centering our activities around the GX Catalysts, we hope to contribute to society's decarbonization efforts by supporting customers' GX through our solution proposals.

Priority Activities

Promotion of a Decarbonized Society

Our Approach

While the advance and spread of ICT has helped to bring about an affluent society and convenient lifestyles, the increase in power consumption from ICT-related equipment is placing enormous pressure on the environment. We continue to reduce greenhouse gas (GHG) emissions, recognizing our responsibility to contribute to addressing environmental problems, including climate change as one of the most pressing issues for realizing a sustainable future. We are also continuing to take various initiatives aimed at reducing GHG emissions throughout our entire supply chain.

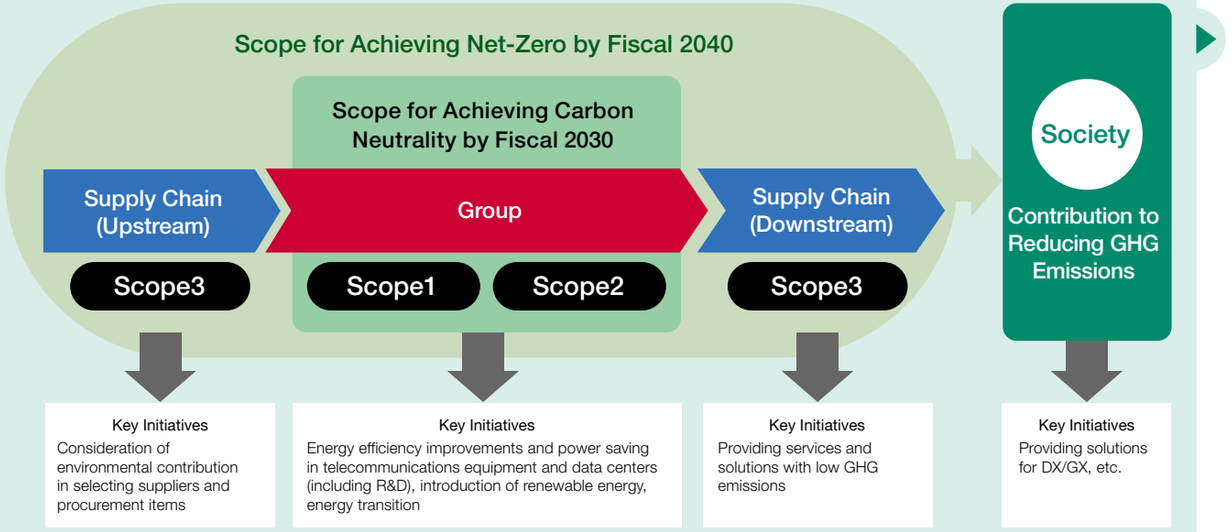
For example, we set “Realizing a Decarbonized Future” as one of the themes for our Environmental Statement and established the New Environmental Goals. In this context, we are focusing on a number of approaches for reducing GHG emissions across the Group, the supply chain, and society. In the Group, we prioritize R&D to enhance energy efficiency and reduce power consumption in telecommunications equipment and data centers while also introducing renewable energy and transitioning to alternative energy sources. In the supply chain, we incorporate environmental considerations into the selection of suppliers and procurement items, and we offer services and solutions with low GHG emissions. For society, we provide a variety of solutions that promote digital transformation (DX) and green transformation (GX), toward achieving carbon neutrality for Scope 1 and 2 by fiscal 2030 and net-zero emissions across Scope 1, 2, and 3 by fiscal 2040.

When assuming that no renewable energy is used, electricity consumption accounts for approximately 95% of total CO_2 emissions from business activities of the NTT Communications Group. Therefore, we can particularly expect great advantages as a result of saving energy and improving the energy efficiency of telecommunications equipment. We are thus making strong efforts in such respects as leading the industry in introducing cutting-edge technologies.

We contribute to the efficiency of society’s electricity usage in data centers and cloud services by consolidating servers, air-conditioning systems, UPS systems, and lighting, which were traditionally installed and operated by customers, into highly energy-efficient data centers.

Furthermore, as a member of the NTT Group, which supports the GX League Basic Concept announced by the Ministry of Economy, Trade, and Industry, we intend to demonstrate our social responsibility by actively engaging in policy formation toward realizing a society in which companies committed to GX can reduce GHG emissions, be properly evaluated, and grow.

[Overview of Efforts toward Promoting a Decarbonized Society]



Main Achievements in Fiscal 2023 and Goals for the Coming Years

In fiscal 2023, we continued our efforts to raise power efficiency per data transmission in our telecommunications businesses. Our comprehensive activities to improve power efficiency included adjusting telecommunications facility intake/exhaust directions, using humidity sensors to improve airflow, optimizing the room temperature by controlling air-conditioning, and turning off unused equipment. As a result, power efficiency increased by 4.7 times that of fiscal 2013, making steady progress toward achieving the target of an increase of 10 times more by fiscal 2030.

Our introduction rate of renewable energy (including virtually renewable energy by using non-fossil fuel certificates) also increased from 8% in fiscal 2020 to about 56% in fiscal 2023. As a result, GHG emissions for fiscal 2023 were 9.7 ten thousand t-CO_2e for the Group (Scope 1 and 2), and 230.9 ten thousand t-CO_2e for the Group plus the supply chain (Scope 1, 2, and 3).

In addition, as part of our energy transition efforts, we continue to focus on electrifying the Company fleet and retiring old vehicles. Of the 500 Company vehicles at the end of fiscal 2023, 206 were electric, representing an EV conversion rate of 41%. For fiscal 2024, we intend to achieve the intermediate target of a 50% EV conversion rate for domestic Company vehicles by fiscal 2025, ahead of schedule, as outlined in our New Environmental Goals.

In fiscal 2024, we will continue these efforts and strengthen services and solutions that contribute to the realization of a decarbonized society. In addition, we will further accelerate the introduction of renewable energy and the transition of our general fleet to EVs to achieve carbon neutrality for Scope 1 and 2 by fiscal 2030 and net-zero emissions across Scope 1, 2, and 3 by fiscal 2040.

Governance

At NTT Communications, we have established the Global Environmental Protection Subcommittee within the Sustainability Management Committee, headed by the executive vice president in charge of sustainability. This subcommittee formulates an overall plan that encompasses a wide range of issues, including the reduction of GHG emissions and waste, and promotes the sharing of results and the horizontal deployment of various initiatives, with a focus on implementing the PDCA cycle. It has also formed working groups (WGs) for specific issues. Among these, the Greenhouse Gas Reduction WG is responsible for planning and implementing energy-saving measures for telecommunications facilities, data centers, and office buildings, planning for the introduction and performance management of renewable energy, and responding to Japanese laws and regulations covering greenhouse gas emissions and more. These efforts contribute to achieving a decarbonized society. Furthermore, the Group Company WG is expanding these initiatives to include the NTT Communications Group companies.

The various initiatives of the Global Environmental Protection Subcommittee are reported and reviewed at the Sustainability Management Committee. Progress on these activities is also shared quarterly with the president and CEO (Executive Committee) and the Board of Directors. The Board of Directors makes final decisions on addressing issues as well as management strategies and business plans. The board also complies with recommendations from the Board of Corporate Auditors and oversees the necessary governance to strategically and appropriately promote sustainability activities while linking GHG emissions to executive compensation and other factors as part of the evaluation for advancing a decarbonized society.

P.047 See the “Promotion Framework for Reducing Environmental Impact” section in the report.

Risk Management

The NTT Communications Group convenes biannual meetings of the Business Risk Management Committee, chaired by the senior executive president, to discuss the definition of risks to be addressed, the identification of critical risks, and initiatives to promote risk management, taking into account the evolving business environment. Within the Business Risk Management Committee, we have also established a Business Risk Management Subcommittee that conducts monthly risk observations.

In addition, we recognize climate change as a significant business risk that could significantly impact the operations of the NTT Communications Group. The Business Risk Management Committee evaluates these risks and confirms the corresponding response measures to ensure effective management.

Strategy

We have declared an Environmental Statement under the NTT Communications Group Global Environmental Charter. One of the three core themes in this statement is “Realizing a Decarbonized Future,” which confirms our focus on a future where people and the planet coexist in harmony.

Climate Scenario Analysis and Initiatives

In May 2020, the NTT Group declared its support for the Task Force on Climate-Related Financial Disclosures (TCFD), established by the Financial Stability Board (FSB). Following our new beginning as the NTT DOCOMO Group in July 2022, we conducted a fresh scenario analysis as a member of the DOCOMO Group in addition to our conventional analysis as a member of the NTT Group. Using the results, we reviewed our efforts and actions as the NTT Communications Group and updated our approach as of October 2024. The analysis of the DOCOMO Group adopted two scenarios of climate-related risks and opportunities associated with the Group’s operations: a well-below 2°C (e.g., 1.5°C) scenario of rapid decarbonization and a 4°C warmer scenario assuming apparent physical impacts.

Taking into account the DOCOMO Group’s scenario analysis as an alternative perspective, we will continue to adopt various approaches for decarbonization and net-zero emissions, including our choice of scenario models.

- A scenario assuming rapid decarbonization:
  Net-Zero Emissions Scenario (NZE), World Energy Outlook 2023, International Energy Agency (IEA)
  Efficient Cooling Scenario, IEA The Future of Cooling, 2018
  NZE Scenario, Study on Scenario Analysis of Climate Change-Related Risks, Central Research Institute of Electric Power Industry (CRIEPI)

- A scenario assuming apparent physical impacts:
  I ntergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report , and IPCC Special Report on Global Warming of 1.5°C
  Baseline Scenario, IEA The Future of Cooling, 2018
  Study on Scenario Analysis of Climate Change-Related Risks, Central Research Institute of Electric Power Industry (CRIEPI)
  Current Policy Scenario
  Ministry of Land, Infrastructure, Transport and Tourism, Technical Study Committee on Flood Control Plans Reflecting Climate Change, Recommendations for Flood Control Plans Reflecting Climate Change, RCP8.5 Scenario

[Risks Identified with Scenario Analysis, and a Summary of the Group's Initiatives]

				Potential Impact on Business	Materiality (Business/ Financial)	Timeframe	Initiatives by the NTT Communications
Well below 2°C scenario (e.g., 1.5°C scenario)	Transition risk	Policies/regulations	Carbon price/ carbon tax	• Increased procurement costs due to the collection of fossil fuel levies starting in fiscal 2028 • Increased costs due to the introduction of a carbon tax	High	Long term	• Improving the power efficiency of air-conditioning and IT equipment at data centers through new technologies and implementing various power reduction measures • Actively introducing renewable energy (including virtually renewable energy by using non-fossil fuel certificates) to achieve carbon neutrality by fiscal 2030 • Introducing internal carbon pricing • Promoting the Net-Zero by fiscal 2040 plan
			Increased policies and regulations for products and services	• Possibility of products not meeting energy efficiency regulations/ standards, resulting in a loss of government or other customers, shifting demand to more satisfactory products/ services	Medium	Long term	• Early launch of services based on customer trends and social needs - Providing renewable energy-derived menu in data centers - Visualizing CO_2 emissions in cloud services - Providing PFs and solutions for decarbonization
		Industry/market	Energy price fluctuations	• Increased energy prices and a shift in demand to energy-efficient products and services	High	Long term	• Reducing power consumption by improving the power efficiency of air-conditioning and IT equipment at data centers through new technologies and implementing various power reduction measures • Securing stable power sources through long-term fixed contracts with power companies, development of special power sources (e.g., PPA), etc. • Promoting IOWN Initiative
			Changes in customer reputation, demands, and behavior	• Customer disengagement and damaged corporate image if our efforts are perceived as passive	Medium	Long term	• Announcing net-zero by fiscal 2040 • Actively introducing renewable energy • Reviewing internal carbon pricing rates
4°C scenario	Physical risks	Chronic	Increased average temperatures and midsummer days	• Possibility of customers not choosing us for data center and telecommunications equipment with low air-conditioning management efficiency and capacity	Medium	Long term	• Reducing power consumption by improving the power efficiency of air-conditioning and IT equipment at data centers through new technologies and implementing various power reduction measures. Ultra-energy-efficient data center service Green Nexcenter®*, incorporating liquid cooling as the latest technology to be deployed in selected data centers • Promoting IOWN Initiative
		Acute	Severe extreme weather conditions	• Damaged data centers due to flooding • Damaged reputation from lack of resilience to disasters	Low	Medium term	• Reliable risk assessment when selecting a construction site • Redundant facilities based on disaster simulation • Securing multiple power supply routes assuming power supply interruption • Reviewing and establishing equipment procurement plans addressing the risk of flooding at manufacturing plants

High materiality: Extremely important in climate action for business continuity and financial reasons
Medium materiality: Relatively less important, although potentially damaging
Low materiality: Limited impact on business, including future prospects

Timeframe: Short term (less than 4 years, assuming NTT Group's new mid-term management strategy period)
Timeframe: Medium term (less than 4 to 7 years, assuming NTT Communications Group's New Environmental Goals targeting carbon neutrality by fiscal 2030 (Scope 1 and 2))
Timeframe: Long term: (7 years or more, assuming NTT Communications Group's New Environmental Goals targeting net-zero by fiscal 2040 (Scope 1, 2, and 3))

*For more information on our Green Nexcenter® and future plans, see:
https://www.ntt.com/business/services/greennexcenter.html (in Japanese only)

*For more information on our other initiatives, see:
https://www.ntt.com/en/about-us/csr/sustainability/policy/environment/report01.html#anc2

[Opportunities Identified with Scenario Analysis, and a Summary of the Group's Initiatives]

			Opportunity Factors	Initiatives by the NTT Communications Group
Opportunities	Resource efficiency	Energy efficiency	• Reducing costs and expanding revenue through improvements in the energy efficiency of air-conditioning systems in telecommunications equipment and data centers, as well as the cooling efficiency of high-heat servers	• Adopting indirect evaporative cooling systems in data centers, which can switch to the optimal heat exchange method based on outdoor conditions • Deploying the ultra-energy-efficient data center service Green Nexcenter® • Providing power options that allow for the selection of renewable energy to meet different decarbonization requests
	Energy sources	Utilization of renewable energy	• Improving the corporate image through the use of renewable energy and decarbonization efforts	• Installing solar power generation systems at 6 data center locations • Purchasing non-fossil certificates • Promoting EV adoption with the goal of achieving 100% by fiscal 2030
		Participation in the carbon market	• Expanding business by creating J-Credits in collaboration with partner companies	• Developing and providing a platform that comprehensively supports the creation, verification, and matching of forest-derived carbon credits • Creating and selling carbon credits through the projects for extending the mid-season drainage period in wetland rice cultivation • Creating credits through biochar
	Products and services	Development and expansion of low-pollution products and services	• Expanding revenue by developing and providing services and technologies that contribute to reducing GHG emissions	• Offering GHG emission calculation, visualization, and analysis services, as well as platforms that contribute to decarbonization • Implementing 100% renewable energy (including effectively renewable energy using non-fossil certificates) for all locations providing SDPF cloud/ servers in their power consumption
		Diversification of business activities, changes in consumer preferences	• Shift in customer needs toward services with better environmental performance	
	Resilience	Expansion of demand for services related to ensuring resilience	• Strengthening reliability by building disaster-resistant data centers	• Constructing data centers in safe locations with low risk from natural disasters such as flooding or earthquakes and adopting seismic isolation structures • Building disaster-resistant data centers through redundant power, air-conditioning, communication equipment, and other systems • Preventing data center downtime by establishing a system capable of rapid response during disasters

Metrics and Targets

The NTT Communications Group, in line with the Environmental Statement and its goal of realizing a decarbonized future, has set the following New Environmental Goals: carbon neutrality by fiscal 2030 (Scope 1 and 2), net-zero by fiscal 2040 (Scope 1, 2, and 3), 100% EV adoption for its corporate fleet in Japan by fiscal 2030, and achieving a ten-fold increase in energy efficiency as a telecommunications operator by fiscal 2030 (compared to fiscal 2013). Progress and initiatives toward each goal are disclosed in sustainability reports and other materials.

Calculation of GHG Emissions (Fiscal 2023 Results)

The Scope 2 GHG emissions for fiscal 2023 were 8.6ten thousand t-CO_2 based on the market-based method*1. In comparison, using the location-based method*2, the emissions were 20.5 ten thousand t-CO_2.

For Scope 3, we calculated emissions by referring to unit emission databases and other materials produced through studies by the Ministry of the Environment and other government ministries and agencies.

Although not reflected as an offset in GHG emissions, we are working toward realizing a sustainable society by procuring J-Credits created through projects for extending the mid-season drainage period in paddy rice cultivation, which is focused on addressing social issues in local communities, including agriculture.

*1 Using emission factors specific to each retail electricity provider: May reflect such company efforts as the purchase of renewable energy-derived electricity and non-fossil certificates. However, GHG emissions may fluctuate significantly depending on changes in emission factors from different retail electricity providers.
*2 Using emission factors specific to each country or region (applying a single emission factor to nearly all electricity consumed): It is nearly impossible to reflect corporate efforts, such as purchasing renewable energy-derived electricity and non-fossil certificates. However, the impact of changes in emission factors from retail electricity providers is small, making it easier to reflect energy-saving efforts.

[GHG Emissions (Scope 1 and 2, Market-based Method)*1, 2]

Fiscal 2023 target	11.7 ten thousand t-CO_2e
Fiscal 2023 result	9.7 ten thousand t-CO_2e
Fiscal 2024 target	9.5 ten thousand t-CO_2e

*1 Includes emissions of greenhouse gases other than CO_2, such as CFC substitutes
*2 Emissions associated with electricity are calculated using emission factors obtained from electric power companies.
Scope: NTT Communications Corporation and 18 Group companies

[GHG Emissions by Scope and Category]

Category	GHG Emissions (ten thousand t-CO_2e)	Composition Ratio (%)
Total emissions	230.9	100%
Scope 1 (direct emissions of greenhouse gases from our own sources, such as fuel combustion)*1	1.0	0.5%
Scope 2 (indirect emissions from the use of electricity, heat, and steam supplied by other companies) (market-based))*2	8.6	3.7%
Scope 3 (indirect emissions other than Scope 1 and 2, such as emissions by others related to activities of the NTT Communications Group)	221.2	
Category 1 (purchased goods and services)*3	103.1	44.7%
Category 2 (capital goods)*3	14.6	6.3%
Category 3 (fuel and energy activities not included in Scope 1 or 2)	2.7	1.2%
Category 4 (upstream transportation and distribution)	1.2	0.5%
Category 5 (waste generated through business activities)	0.0*10	0.0%*10
Category 6 (business travel)	0.9	0.4%
Category 7 (employee commutations)	0.0*10	0.0%*10
Category 8 (upstream leased assets)*4	—	—
Category 9 (downstream transportation and distribution)*5	—	—
Category 10 (processing of products sold)*6	—	—
Category 11 (use of products sold)*7	52.8	22.9%
Category 12 (disposal of products sold)*7	0.2	0.1%
Category 13 (downstream leased assets)	45.7	19.8%
Category 14 (franchise)*8	—	—
Category 15 (investments)*9	—	—

*1 Includes emissions of greenhouse gases other than CO_2, such as CFC substitutes
*2 Emissions associated with electricity are calculated using emission factors obtained from electric power companies.
*3 Calculated by multiplying each supplier's transaction amount by their emissions intensity (calculated from their disclosed data) or by the emissions intensity according to the transaction details. Categorization methods for Categories 1 and 2 were reviewed to improve accuracy from the fiscal 2023 results, and the scope of calculation was expanded to include the entire NTT Communications Group.
*4 Counted for calculation, but no results were available (fuel and electricity used by leased assets are calculated under Scope 1 or 2)
*5 Counted for calculation, but no results were available (mostly outsourced transportation calculated under category 4)
*6 Counted for calculation, but no results were available (no intermediate product processing in main businesses)
*7 Updated the targeted services starting from the fiscal 2023 results, based on the organizational restructuring with NTT Docomo Group implemented in July 2022.
*8 Counted for calculation, but no results were available (not applicable)
*9 Counted for calculation, but no results were available (calculated in Scope 1 or 2)
*10 Less than 0.05
Scope: NTT Communications Corporation and 18 Group companies

Reduction of GHG

Fiscal 2023 Results: Group

GHG Emissions

Fiscal 2023 Target: 11.7 ten thousand t-CO_2e or lower*
*YoY –10%

Fiscal 2023 Result: 9.7 ten thousand t-CO_2e or lower*
(Fiscal 2022 result: 13.0 ten thousand t-CO_2e or lower)
* Includes emissions of greenhouse gases other than CO_2, such as CFC substitutes

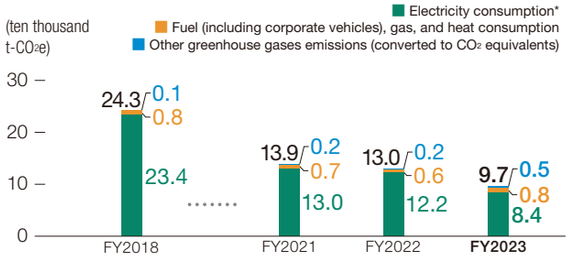
In fiscal 2023, GHG emissions (Scope 1 and 2) from NTT Communications Group business activities totaled 9.7 ten thousand t-CO_2e, achieving the 2023 target set after revising the aggregation boundary for overseas Group companies. This was mainly achieved by further striving to save energy in telecommunications facilities and data centers, promoting remote work, which resulted in a continued reduction in power consumption in offices, and expanding the introduction of renewable energy (including virtually renewable energy by using non-fossil fuel certificates). The GHG emissions per unit of sales were 0.08 t-CO_2e per millions of yen (fiscal 2022 result: 0.11 t-CO_2e per millions of yen).

We have set the GHG emissions target (Scope 1 and 2) for fiscal 2024 at 9.5 ten thousand t-CO_2e, a reduction of 0.2 ten thousand t-CO_2e from the previous fiscal year, taking into account the significant shortfall in fiscal 2023 performance. The NTT Communications Group will continue working in concert on energy-saving activities, the expansion of renewable energy adoption, and new initiatives, including the utilization of R&D technologies, to steadfastly advance toward achieving carbon neutrality (Scope 1 and 2) by fiscal 2030.

* To clarify the scope of the initiatives implemented by the NTT Communications Group to promote a decarbonized society, the following tags have been added to the headings.
Group ····· Initiatives corresponding to Scope 1 and 2 of the NTT Communications Group
SC ····· Initiatives corresponding to Scope 3 of the NTT Communications Group (SC: supply chain)
Society ····· Initiatives that contribute to GHG emission reductions in society but do not directly correspond to Scope 1, 2, or 3 of the NTT Communications Group
(Customers) ····· Initiatives specifically related to customers

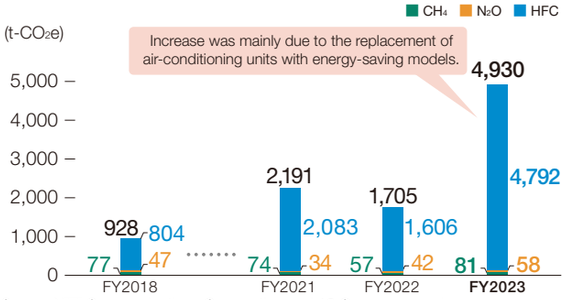
P.053 For the "Overall Initiatives for Promoting a Decarbonized Society," see:

[GHG Emissions from Business Activities]



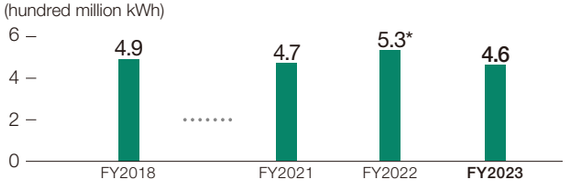
Scope: NTT Communications Corporation and 18 Group companies
* Emissions associated with electricity are calculated using emission factors obtained from electric power companies

[Other GHG Emissions (Converted to CO_2 Equivalents)]



Scope: NTT Communications Corporation and 18 Group companies

[Power Consumption (including electricity and renewable energy derived from GHG Protocol Scope 2 emissions from business activities)]



Scope: NTT Communications Corporation and 18 Group companies
* In fiscal 2022, there was a temporary increase due to the adoption of a different calculation method at overseas Group companies, which became consolidated entities starting from the third quarter. Using the current calculation method, the total is 4.8 hundred million kWh.

Expanding the Use of Renewable Energy Group

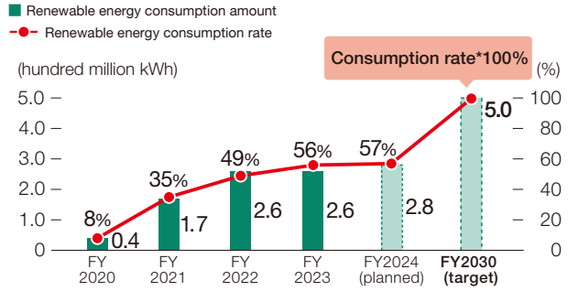
Since April 2020, we have been actively introducing and expanding the use of renewable energy, including virtually renewable energy through the use of non-fossil fuel certificates. In fiscal 2023, 2.6 hundred million kWh was derived from renewable energy sources, representing 56% of the total electricity consumption of 4.6 hundred million kWh.

In Tokyo, our telecommunications facilities and data center buildings have been using solar power generation systems since fiscal 2009, with six systems currently in operation. In fiscal 2023, these solar power systems generated a total of 52.5 ten thousand kWh.

In fiscal 2024, we will continue to expand the use of renewable energy.

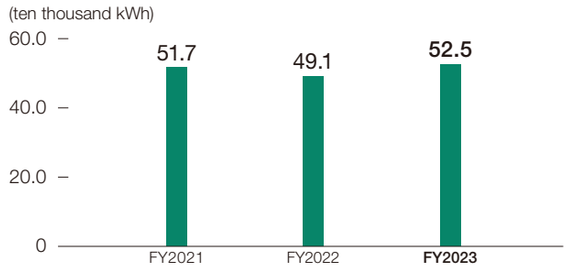
[Saitama 1 Data Center (100% powered by renewable energy from fiscal 2022)]

[Consumption rate of electricity derived from renewable energy sources (including virtually renewable energy by using non-fossil fuel certificates)]



Scope: NTT Communications Corporation and 18 Group companies
* Targeted GHG Protocol: Scope 2 emissions from business activities

[Total Solar Panel Power Generation]



Scope: NTT Communications Corporation and 18 Group companies

Evaluation by National and Local Governments

Group SC (Customers)

In fiscal 2023, NTT Communications received the following evaluations from the national and local governments.

- Agency for Natural Resources and Energy: Class S (highest rank) under the business operator classification system based on the Act on Rationalizing Energy Use (Energy Conservation Act)
- Tokyo Metropolitan Government: SS rank (highest rank) for efforts related to addressing global warming
- Tokyo Metropolitan Government: S rank (highest rank) for our global warming countermeasure plans for specified tenant buildings, such as Otemachi Place and Granpark
- Osaka Prefecture: Governor's Award (equivalent to the highest award) for the Osaka Climate Change Action Awards in recognition of significant reductions in greenhouse gas emissions and contributions to mitigating climate change
- Sendai City: Excellent business operator (first plan period) for the Greenhouse Gases Reduction Action Program

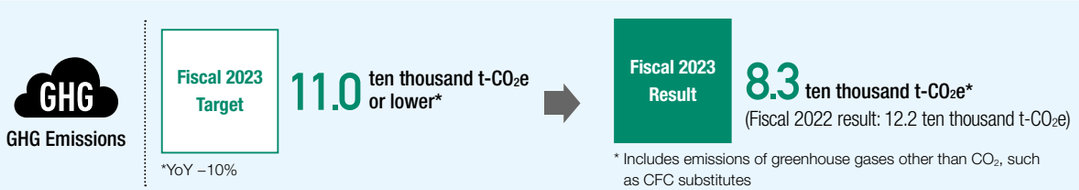
NTT Communications will remain committed to legal and regulatory compliance to prevent global warming, while actively promoting a decarbonized society in many regions. This includes participating in the GX League as part of the NTT Group, joining the Osaka Prefecture Decarbonization Management Declaration, and engaging in the Yokohama Decarbonization Innovation Council.

* Specified tenant buildings are those occupied by businesses that use at least 600 ten thousand kWh of electricity per year or lease at least 5,000 m2 of floor space.

[Award Ceremony for the Osaka Climate Change Action Awards (Mitigation Sector)]

Initiatives Related to Telecommunications Facilities and Data Centers

Fiscal 2023 Result Group



In fiscal 2023, our GHG emissions (Scope 1 and 2) decreased as a result of the increased use of renewable energy as well as the augmented and expanded measures such as reducing electricity use in air-conditioning systems by making visible the power usage status of machinery and server rooms, along with introducing AI-powered automatic control for cooling systems and optimizing the number of telecommunications facilities. Although there was a rise in demand for sales at data centers in Tokyo and Osaka, we were nevertheless able to achieve our FY2023 target.

Although the trend of rising demand is expected to continue in fiscal 2024, we intend to meet our GHG emissions target through a year-on-year reduction by expanding visualization of power usage, implementing newly developed technologies, improving airflow, and optimizing equipment for telecommunications services.

The NTT Communications Group contributes to reducing GHG emissions from its own operations as well as its customers through the following initiatives.

- Introducing and utilizing energy-saving technologies in data centers
- Forecasting and visualizing CO_2 emissions in cloud services and achieving carbon neutrality in electricity usage
- Offering customers a renewable energy menu for using data centers

Data Center Initiatives Group SC (Customers)

Operating data centers requires a constant supply of electric power. As an ICT company, we proactively introduce leading-edge equipment and technologies for reducing the carbon footprint of our data centers.

For example, our relatively new data centers are equipped with improved cooling efficiency and lower power consumption in their air-conditioning systems owing to the use of outside air for cooling IT equipment, precise automatic temperature measurement, and proactive AI-based air-conditioning control based on these measurements. In addition, we have installed an indirect evaporative cooling system for the new data center in Tokyo. This made us the industry's first to use the system, which is expected to reduce the annual energy cost by 60% compared to a conventional system.

In addition to cooling systems, we are working toward decarbonization by introducing a solar power generation system and an automatic motion sensor lighting system to conserve and more efficiently use energy.

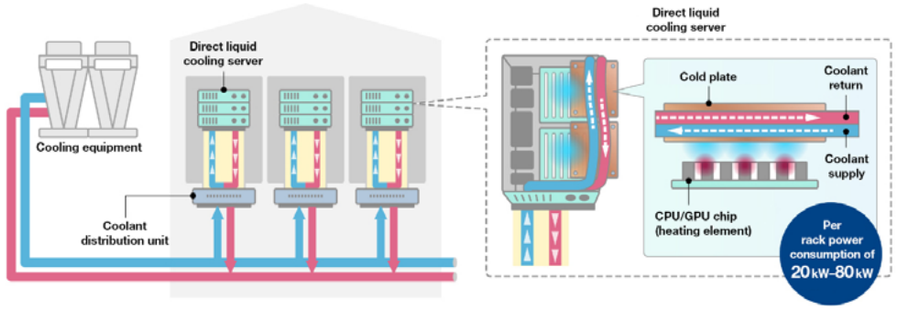
In fiscal 2024, we will begin deploying Green Nexcenter®, a service that supports the use of liquid-cooled equipment in ultra-energy-saving data centers. This service reduces cooling power consumption by approximately 30% compared to conventional data centers, addressing the substantial energy demands and heat generation of intensive computing tasks such as those involved in operating generative AI. We are

also advancing plans to introduce new communication infrastructure for APN (All-Photonics Network as a cutting-edge optical transmission technology that contributes to ultra-high-speed communication with minimal fluctuations and reduces power consumption in ICT infrastructure) as part of the IOWN (Innovative Optical and Wireless Network) concept, for realizing next-generation network and information processing platforms through the use of photonic fusion technologies. By accelerating the connection between APN and Green Nexcenter®, we will help establish an environment that significantly reduces the power required for the latest technologies, thereby accelerating the decarbonization of data centers.

Latest Cooling Technology for High-Heat Servers Group SC (Customers)

Along with the recent increased demand for servers with robust processing capabilities, managing the extremely high heat generated by their equipment continues to be a challenge that requires cooling facilities or systems that can efficiently cool the super-heated servers. Green Nexcenter® adopts the direct liquid cooling method, the first of its kind in Japan for commercial colocation services. This technology provides cooling for high-heat servers, which is difficult with conventional data center methods, offering energy-saving performance that significantly exceeds previously used technologies. In direct liquid cooling, liquid is supplied directly to heat sinks, which are components designed to dissipate heat from high-heat chips installed in server equipment. This cooling approach is specifically designed to manage the heat generated by these powerful chips.

[Direct Liquid Cooling]



Providing Renewable Energy Tailored to Data Center Customers'Needs SC (Customers)

With the expansion of the digital society, demand for power in data centers is increasing year by year. The issue is that while it is possible to improve the energy consumption efficiency of data centers, it is not possible to eliminate power consumption itself.

In addition to our data centers located in telecommunications buildings that began using renewable energy in fiscal 2020, our new data center established in Tokyo in fiscal 2021 also relies on renewable energy. In fiscal 2022, we began featuring a wide range of renewable energy options to meet customer needs at our five data centers in the Tokyo metropolitan area. This enables our customers to comply with RE100* and other international environmental initiatives as well as to promote their ESG management toward decarbonization.

Going forward, we will not only begin providing renewable energy through the Green Nexcenter® service but also gradually expand our efforts to spread the use of renewable energy not only inside the Company but with our customers.

Starting in the second half of fiscal 2025, we will be offering services at the new Keihanna Data Center (provisional name) to be constructed in Kyoto Prefecture by NTT Global Data Centers Corporation. We are currently working on a system that will virtually eliminate CO_2 emissions from this data center by using renewable energy according to customer needs.

* A global initiative that brings together companies that intend to switch to 100% renewable energy sources for electricity used in their business activities.

Carbon Neutral Initiatives in Our Cloud Service

Group Society (Customers)

In the Smart Data Platform Cloud/Server service, our cloud computing service that uses NTT Communications data centers, we completed the introduction of 100% renewable energy, which includes the use of non-fossil fuel certificates, at all operational sites by August 2023, achieving carbon neutrality for our electricity consumption. With this service, we will support our customers in moving their on-premise environments to the cloud and reduce GHG emissions in their value chains.

Providing CO_2 Emissions Forecasting and Visualization Functions in Our Cloud Service

In our Smart Data Platform Cloud/Server service, we have started to provide simulation to forecast CO_2 emissions and a dashboard to visualize emissions free of charge in fiscal 2023, the first cloud service provider in Japan to do so. The service allows customers to simulate the CO_2 emissions reduced by migrating from their conventional on-premise environment to the SDPF Cloud/Server, and to confirm the volume of CO_2 emitted by their usage on the portal with the use of cloud services powered by 100% renewable energy. We will continue to promote efforts to help customers further reduce their environmental impact.

[Screen image of the Carbon Footprint Simulation for forecasting CO_2 emissions]

[Screen image of the Carbon Footprint Dashboard for visualizing CO_2 emissions]

Ongoing Efforts to Cut Cooling Power Consumption at Telecoms Facilities and Data Centers

Group SC (Customers)

In past efforts to reduce power consumed by cooling, we have implemented a range of measures, including SmartDASH® an automated AI system that visualizes temperature zones, detects areas that are too cold, and automatically controls air-conditioning, and Aisle Capping, a technique that physically separates the intake (low temperature) and exhaust (high temperature) air from IT equipment by placing sidewalls and ceilings in the aisles between rows of server racks.

As a further step to reduce power used for cooling at our data centers, we are moving beyond ICT-driven visualization of both temperature and power consumption to continue our work on more finely tuned air-conditioning power management. This includes calculating the power usage effectiveness (PUE)* of each room to improve low-efficiency rooms by implementing thorough airflow improvement, temperature adjustments, and air-conditioning shutdown initiatives.

In addition, for our telecommunications buildings, we will address the migration in ICT equipment from old models to highly efficient new ones, we will also seek to cut down on power consumed by ICT and air-conditioning systems through the timely discontinuation of use of the old models.

* Power usage effectiveness: (Power consumption of the entire data center)/(Power consumption of ICT equipment in the data center). An indicator for measuring the energy efficiency of a data center; the closer the number approaches 1, the more efficient the data center.

Office Initiatives

Fiscal 2023 Result Group

GHG Emissions

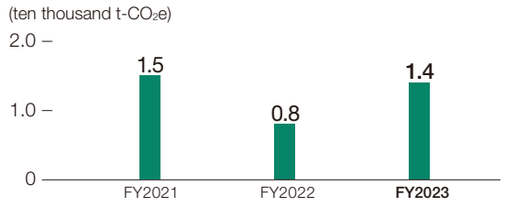
Fiscal 2023 Target: 0.8 ten thousand t-CO_2e or lower*
*Down at least 5% YoY

Fiscal 2023 Result: 1.4 ten thousand t-CO_2e*
(Fiscal 2022 result: 0.8 ten thousand t-CO_2e)
* Includes emissions of greenhouse gases other than CO_2, such as CFC substitutes

In fiscal 2023, as remote work became a standard option for employees, we continued efforts to reduce office electricity consumption and GHG emissions. These efforts included designing metropolitan area offices based on the assumption of maintaining an employee attendance rate capped at 30%, as well as sustaining zero-emission electricity usage for all power in the headquarters building (Otemachi Place), which was achieved in September 2021. As a result, our GHG emissions temporarily increased due to factors such as the expansion of office space following the organizational restructuring with the NTT DOCOMO Group in July 2022 and changes in the procurement methods for renewable energy in offices. However, the NTT Communications Group as a whole, including telecommunications facilities and data centers, successfully achieved its GHG emissions target for fiscal 2023.

In fiscal 2024, we expect to see an increase in employee office attendance due to changing societal expectations as the COVID-19 pandemic subsides. However, we will actively focus on further reducing electricity usage through enhanced energy-saving measures in offices and additional office consolidations. Furthermore, we are committed to expanding the adoption of renewable energy across the entire Group, including our Group companies.

[GHG Emissions from Offices]



Scope: NTT Communications Corporation and 18 Group companies
* Includes emissions of greenhouse gases other than CO2, such as CFC substitutes

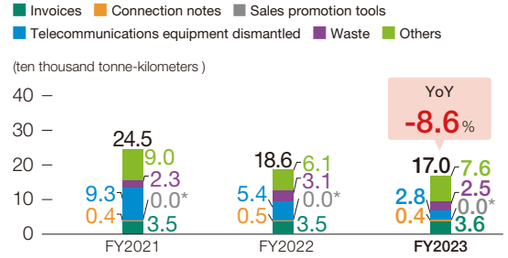
Transportation Initiatives

Fiscal 2023 Results SC

NTT Communications annually audits the amount of transportation for invoices, sales promotion tools, and office waste. Also, we voluntarily seek ways to streamline transportation such as by reducing the number, volume, and distance required for transport and by otherwise enhancing logistics.

In fiscal 2023, we took action to reduce the amount of paper by expanding web-based applications, digitalizing sales tools, and continuing remote sales efforts. We also observed a decrease in the volume of dismantled telecommunications equipment transported due to the reorganization with the NTT DOCOMO Group in July 2022. As a result, total transportation volume was 17.0 ten thousand tonne-kilometers. In fiscal 2024, we will continue to reduce transportation volume by promoting the use of web-based application systems and digitalization.

[Goods Transportation Volume under the Revised Energy Conservation Law]



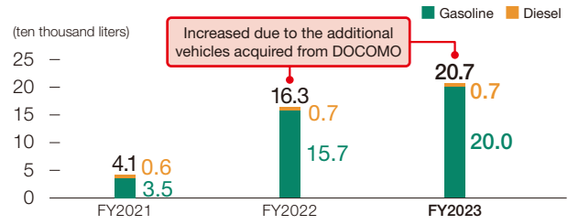
Scope: NTT Communications Corporation
*Less than 0.05

Reducing Fuel Use by Company Vehicles Group

To help solve pollution problems and contribute to the realization of a low-carbon society, we are working to have EVs account for 100% of our corporate fleet by fiscal 2030 under the EV100 initiative declared by the NTT Group in October 2018. We are also reviewing the number of our sales vehicles and steadily promoting eco-driving and other measures to reduce the volume of fuel used by Company vehicles across the entire Group.

In fiscal 2023, we continued our efforts to introduce EVs, replacing 46 vehicles with EVs and scrapping 74 vehicles through efficient vehicle operations and the implementation of remote sales. As a result, the number of Company vehicles, including those acquired as part of the organizational restructuring with the NTT DOCOMO Group in the second quarter of fiscal 2022 , decreased from 574 vehicles (160 EVs) at the end of fiscal 2022 to 500 vehicles (206 EVs) at the end of fiscal 2023.

[Fuel Consumption by Company Vehicles]



Scope: NTT Communications Corporation and 18 Group companies

For more information on EV 100, see:
https://www.ntt.com/en/about-us/csr/eco/details.html

Preventing Air Pollution and Promoting Energy Conservation through Electric Propulsion Ships Group

The subsea cable-laying vessels Kizuna and Subaru utilize an electric propulsion system* that optimizes the number of engines in operation in accordance with the load from the type of the subsea cable being laid and changes in the weather at sea. Due to the increasing occurrence of natural disasters in recent years, these subsea cable-laying vessels have been more frequently deployed. Despite this, by controlling the number of engines in operation, we keep down the amount of heavy fuel oil used while reducing emissions of, for example, CO_2, NOx, and SOx.

When in operation, we work to optimize fuel consumption by the most effective operating methods (including optimum route selection that takes into account the ship's speed, ocean currents, and weather conditions as well as other factors) in order to curtail the amount of CO_2 emitted based on a Ship Energy Efficiency Management Plan (SEEMP).

We are also carrying out the partial installation of LED energy-saving lighting for the ships (cable-laying ship Kizuna was fully equipped with LED lighting when it was first built).

* An electric propulsion system is a type of ship that turns a generator with its engines, drives motors with the electric power obtained, and turns propellers and bow thrusters for propulsion.

[Cable-laying ship Kizuna (8,598 tonnes)]

[Cable-laying ship Subaru (9,557 tonnes)]

Reducing the Carbon Footprint of Society through Our Products and Services

Social Contribution through Business Activities

Society (Customers)

- **Supporting the Creation and Trading of Forest-derived J-Credits: A Platform for Sustainability**

In recent years, a growing number of municipalities and companies have been considering the adoption of carbon credits, particularly with the introduction of initiatives like the GX-ETS*1, as part of efforts to achieve carbon neutrality. The use of forest-derived carbon credits is particularly expected to promote the cyclical use of forests and timber, and to contribute to the restoration of the multiple functions of forests, leading to proper management.

However, many challenges remain, related to the creation of carbon credits such as forest data management. To address these challenges, NTT Communications and Sumitomo Forestry Co., Ltd. have developed the Forest Value Creation Platform, Morikati, which will be offered starting in fiscal 2024. Morikati is a comprehensive platform that supports the creation, certification, and trading of forest J-Credits*2.

The Morikati platform provides geographic information system (GIS*3) functionality to credit creators, certifying bodies, and buyers of forest J-Credits. This functionality allows for the easy, centralized management of digitized data, reduces the data management burden for credit creators, and improves the operational efficiency of certifying bodies. It also allows credit buyers to easily access information about the forest's location and related documents through the GIS functionality, as well as to obtain various details, such as the forest's region and environmental value beyond CO_2 absorption, on the dedicated sales page for buyers.

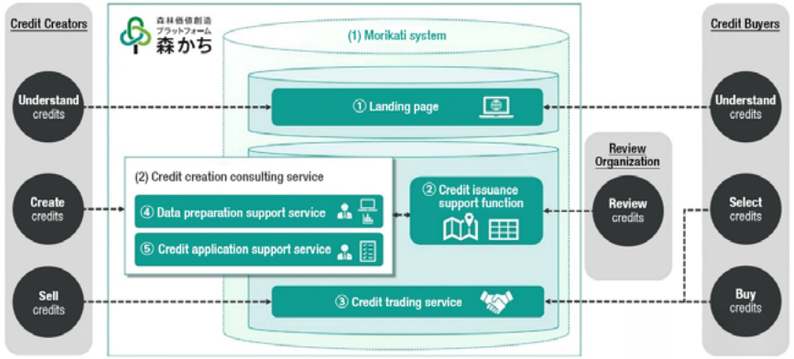
These features are intended to streamline the forest J-Credit issuance process, promote the creation and circulation of credits, enhance trust through transaction transparency, and enable us to contribute to addressing social issues by involving both buyers and local communities.

Going forward, we will develop systems to support carbon offsetting at events and evolve the platform to facilitate the quantitative evaluation of functions beyond CO_2 absorption.

*1 GX-ETS is the first nationwide emissions trading system in Japan, established to help companies that support the GX League implement GX investments, greenhouse gas reduction efforts, and information disclosure.
*2 The Forest-based J-Credit is a credit certified by the government based on the amount of CO_2 absorbed through proper forest management practices such as thinning (source: J-Credit System website https://japancredit.go.jp/case/scheme/02/).
*3 GIS is a technology that comprehensively manages and processes spatial data related to geographical locations and visually displays it, enabling advanced analysis and quick decision-making.

P.026 For more information, see CASE 1: Supporting the Creation and Utilization of J-Credits through Collaboration with Companies and Local Communities section in this report.

[Overview of Morikati]



[Screen image of the Morikati GIS page]

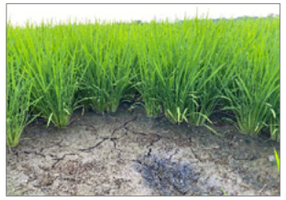
[Screen image of the Morikati sales page]

Creation of J-Credits through Projects for Extending Mid-Season Drainage Period in Wetland Rice Cultivation

NTT Communications is working on reducing the emissions of methane gas, which is said to be about 25 times more harmful than CO_2 as a greenhouse gas, through a method* of extending the mid-season drainage period in paddy rice cultivation, formulated by the Ministry of Agriculture, Forestry and Fisheries. In January 2024, NTT Communications received the first domestic certification of J-Credits under this methodology. In addition to supporting producers in the creation and sale of J-Credits, we want to enhance the brand value of agricultural products through environmental conservation. This contributes to expanding revenue sources and aligns with our goal of building a sustainable agricultural model.

* This method extends the period of mid-season drainage, when water is drained from paddy fields to dry the soil, by more than seven days during the rice cultivation period to reduce methane gas emissions from the soil.

[During mid-season drainage]



For more information on the Methane Gas Reduction Project through Extension of the Mid-Season Drainage Period in Rice Fields, for which we have obtained J-Credit certification, see:
https://www.maff.go.jp/j/press/kanbo/b_kankyo/240126.html (in Japanese only)

P.026 For more information, see CASE 1: Supporting the Creation and Utilization of J-Credits through Collaboration with Companies and Local Communities section in this report.

Provision of Greenhouse Gas Emissions Calculation, Visualization, and Analysis Service: CO2MOS®

NTT Communications provides the CO2MOS® GHG emissions calculation, visualization, and analysis service to support the realization of a decarbonized society. The service enables companies to calculate not only their own GHG emissions but also emissions across the entire supply chain through data integration capabilities, including carbon footprint calculations. In fiscal 2024, we started implementing the CO2MOS® service with suppliers of the DOCOMO Group to reduce GHG emissions across the entire supply chain.

Furthermore, by flexibly applying the features of CO2MOS® to meet the needs of various industries and companies, we are advancing the provision of services tailored to customer requirements. As the first initiative, we began offering the MIeCO$_2$ decarbonization solution, which incorporates insights from the steel industry in collaboration with Marubeni-Itochu Steel Inc. and Wastebox Co., Ltd. in September 2023. Moving forward, we will expand the value of our offerings through further deployment with upstream suppliers and across other industries.

[Screen image of Scope 1, 2, and 3 emissions analysis and visualization on CO2MOS®]

[Screen image of the greenhouse gas reduction simulation on CO2MOS®]

Provision of Environmental Behavior Change Solution for Employees: Green Program® for Employee

NTT Communications has been offering the Green Program® for Employee app since November 2022 to promote environmental awareness and change employee behavior. The program is intended to instill employee environmental awareness and actions, uniting with them to promote green transformation (GX). Users can experience the reduction of CO_2 emissions through their environmental actions in daily life and work while also adding to their environmental knowledge through quizzes and articles. The app aggregates and visualizes the user's environmental actions, encouraging further engagement and promoting Companywide efforts. The accumulated data also allows for the quantitative assessment of impact, which can be used to improve initiatives and communicate results both internally and externally. Going forward, we will collaborate with more companies and expand our offerings to support the realization of carbon neutrality across society as a whole.

[Screen images of Green Program® for Employee]

Environmental Labeling System for Solutions

The NTT Group is exploring the idea of an Environmental Labeling System for Solutions for self-certification of environmentally friendly ICT solutions and services. To qualify, ICT solutions and services will have to achieve CO_2 reductions of at least 15%, as assessed through the objective evaluation of environmental impact reduction benefits using life-cycle assessment. The entire NTT Group provides these environmentally friendly services to help reduce the environmental impact of society.

The NTT Communications Group has obtained a cumulative total of 12 solutions certified under the Environmental Labeling System, and we will continue to obtain additional certifications.

(Unit: %)

Certified Solutions (Excerpt)	CO_2 Reduction Effect (at the Time of Certification)
docomo sky Cloud	37
LoRa®	36
Nexcenter	43
Enterprise Cloud	74
Arcstar IP Voice	30
Arcstar Universal One Mobile	24

For more information on the Environmental Labeling System for Solutions, see:
https://group.ntt/jp/environment/protect/lowcarbon/label/

Acquisition of the Eco ICT Logo

We conducted a self-assessment of our GHG reduction measures and submitted an application in accordance with the ICT Ecology Guidelines created by the ICT Ecology Guideline Council* and acquired the eco-ICT Mark.

The council created and published the Ecology Guideline for the ICT Industry, which are guidelines for applying the appropriate GHG reduction measures to be implemented by telecommunications carriers and clearly defines the standards for procuring systems and data center services from the viewpoint of reducing power consumption. The guidelines have been subsequently revised, and version 10.1 was published in February 2024.

Working together with our Group companies participating in this initiative, we will continue to roll out our ecological initiatives in the ICT field.

* Established on June 26, 2009 by five industry organizations: Telecommunications Carriers Association, Telecom Services Association, Japan Internet Providers Association, Communications and Information Network Association of Japan, and Japan Cloud Industry Association

For more information on the Eco ICT Logo, see:
https://www.tca.or.jp/press_release/2010/0701_400.html
(in Japanese only)

For more information on the self-assessment checklist, see:
https://www.ntt.com/about-us/csr/eco/ecoict.html
(in Japanese only)

Priority Activities

Development of a Closed-loop Society

Our Approach

To contribute to the realization of a closed-loop society, the NTT Communications Group promotes the 3Rs of reduce (waste prevention), reuse (encouraging repeated use), and recycle (improving recycling rates) while also building business models with low environmental impact. The inefficient use of resources and rising volume of waste are becoming increasingly serious social issues and encompass a variety of risks. To fulfill our social responsibility regarding these issues, we organized working groups in the three areas of dismantled telecommunications equipment, construction waste, and office waste, and we are working in cooperation with other NTT Group companies to thoroughly implement the 3Rs while promoting resource circulation, such as recycling plastics.

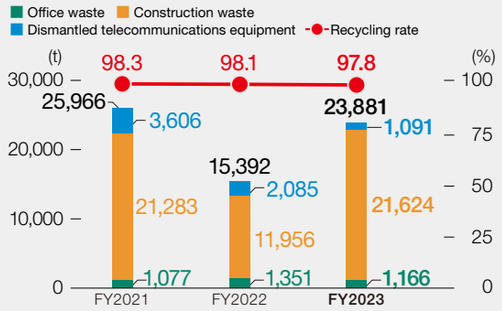
We are also working to provide and co-create ICT platforms as well as services and solutions that lead to a closed-loop society, which can also provide a business opportunity for increasing our corporate value. Through these initiatives and many other efforts, and united as the NTT Communications Group, we are committed to a greener future with the most effective use of resources through proper waste management and promotion of reusing and recycling in our business activities.

Main Achievements in Fiscal 2023 and Goals for the Coming Years

In fiscal 2023, the total volume of waste from dismantled telecommunications equipment was 1,091 tonnes, construction waste was 21,624 tonnes, and office waste was 1,166 tonnes. The total volume of waste generated increased by 8,489 tonnes, compared to the previous fiscal year, to 23,881 tonnes, mainly due to the increase in construction waste, which includes a large amount of items that are difficult to recycle. The recycling rate for the total volume of waste was 97.8% due to the increase in construction waste, a slight decrease compared to the previous fiscal year (98.1%).

We will continue to manage the recycling rate as part of our efforts to create a recycling-oriented society and ensure that the 3Rs are thoroughly implemented in our business activities.

[Volume of Waste Generated and Recycling Rate]



Scope: NTT Communications Corporation and 18 Group companies

Risks and Opportunities

Unless global efforts to promote resource circulation are effectively advanced, there is a risk of long-term harm to the Earth's natural environment and ecosystems, as well as the potential for widespread resource shortages and soaring costs. Against this background, social concerns about waste issues are rising, and waste-related regulations that require compliance by businesses are becoming stricter year by year. If a violation of regulations, such as the illegal dumping of industrial waste, occurs, a company could face strong public criticism. This in turn could result in a loss of social reputation, posing a business risk, and potentially lead to reduced sales revenue due to a failure to meet customer procurement standards.

On the other hand, we believe that realizing a circular economy within the NTT Communications Group and providing ICT platforms, services, and solutions to help our customers address waste issues and achieve a circular economy can contribute to addressing regional and global environmental challenges. This approach also presents a significant opportunity to enhance corporate value and drive business growth.

Building Business Models with Low Environmental Impact

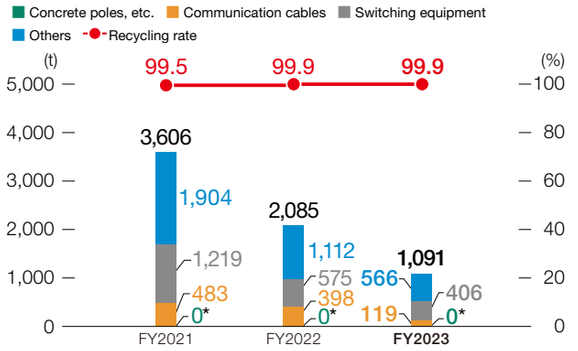
Effectively Using Water Resources

Water resources are indispensable for the survival of all living things, but the increasing world population and economic development have led to concerns over water shortages and pollution. We are striving to use water resources more effectively by recycling and reusing cooling water in our data centers and switching to water-saving toilets in our major office buildings. As part of utilizing ICT to support social infrastructure, we are developing a water demand prediction system to contribute to addressing social issues related to water resources. The total volume of water used in fiscal 2023 was 422,000 m³.

Initiatives to Improve the Recycling Rate

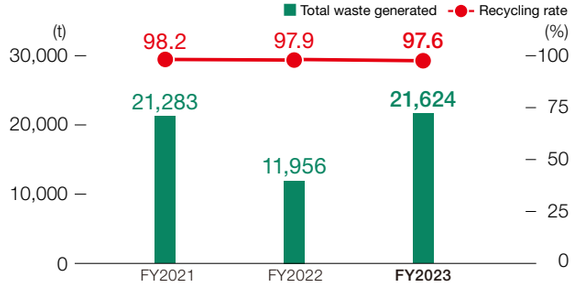
We believe that one of our most important obligations as an ICT services provider is to create business models that emphasize recycling. We are therefore carefully selecting waste processors for telecommunications equipment, data centers, and office buildings based on their recycling rates. In selecting waste processing service providers, we seek to ensure proper disposal and improve the recycling rate by screening candidates based on our pre-established criteria and consigning work to businesses that meet the qualifications. As a result, the recycling rate of office waste, which was 81.5% in fiscal 2013, has improved to 97.8%, as of fiscal 2023, showing steady progress.

[Total Volume and Recycling Rate of Dismantled Telecommunications Equipment]



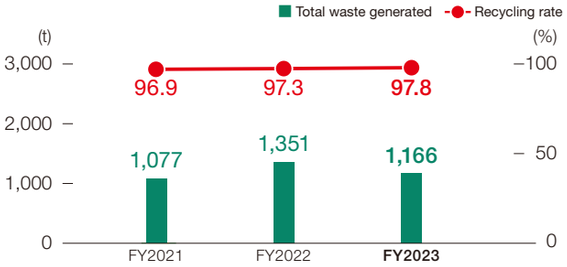
Scope: NTT Communications Corporation and 18 Group companies
* Less than 0.5

[Total Volume and Recycling Rate of Construction Waste]



Scope: NTT Communications Corporation and 18 Group companies

[Total Office Waste and Recycling Rate]



Scope: NTT Communications Corporation and 18 Group companies

Promoting the Reuse of Fixed Assets

From the perspective of promoting the efficient operation and reuse of fixed assets, including small assets and equipment, we are matching organizations that need assets with those that do not. Thanks in part to this effort, in fiscal 2023 we reused 159 items of dismantled equipment and 594 units of equipment and packages overall. In fiscal 2024, we will continue to promote the reuse of fixed assets and strive to reduce the amount of waste we generate.

Promoting the Reuse of Fixed Assets

Reduction in Paper Use for Business Purposes

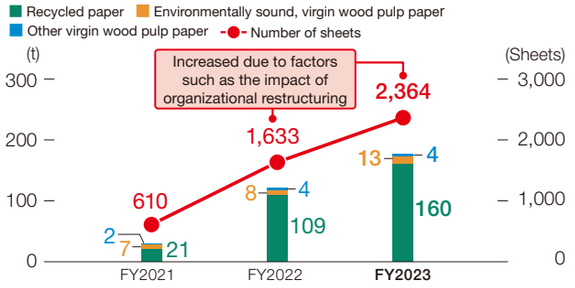
NTT Communications is working to reduce its use of all kinds of paper for business purposes, including that for printing customer billing statements. We have been using our own paper use indicator per full-time employee since fiscal 2007 to reduce the use of office paper and have also

been raising employee awareness through various efforts such as curbing the use of paper and increasing the rate of double-sided printing by using printing log data from IC card multifunction printers, and collecting the initiative status data per individual and section and disclosing it to all employees on a monthly basis.

Since fiscal 2020, we have made significant progress in digitizing paper documents as part of our initiatives to promote remote work and work-life balance, resulting in a substantial decrease in the amount of paper used per employee (converted to A4-size office paper) from fiscal 2019 (3,585 sheets). However, the amount of office paper used per employee increased due to the impact of the organizational restructuring with the NTT DOCOMO Group in July 2022 , including the transfer of personnel and systems.

In fiscal 2023, as a result of the full-year impact of the organizational restructuring, changes in business processes, and social environmental changes associated with the end of the COVID-19 pandemic, the amount of office paper used per employee increased to 2,364 sheets, a significant rise compared to fiscal 2022. In fiscal 2024, we will continue to reduce the amount of office paper used by improving our business processes and systems.

[Total and Per-employee Office Paper Use]



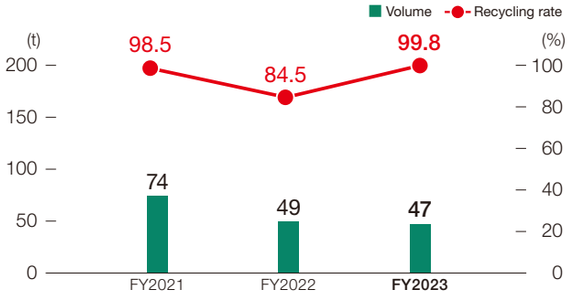
Scope: NTT Communications Corporation and 18 Group companies

Response to Plastics Pollution

Concern has been growing around the world over plastic waste, including the pollution of marine environments. NTT Communications upholds the implementation of closed-loop recycling as a CSR Priority and is working on reducing and promoting the recycling of plastic waste.

In fiscal 2023, the volume of plastic waste generated decreased due in part to the disposal of fixtures following office relocation, and the rate of plastic recycling also improved. We will continue addressing plastic pollution through our business activities.

[Volume of Plastic Waste and Recycling Rate (Office)*]

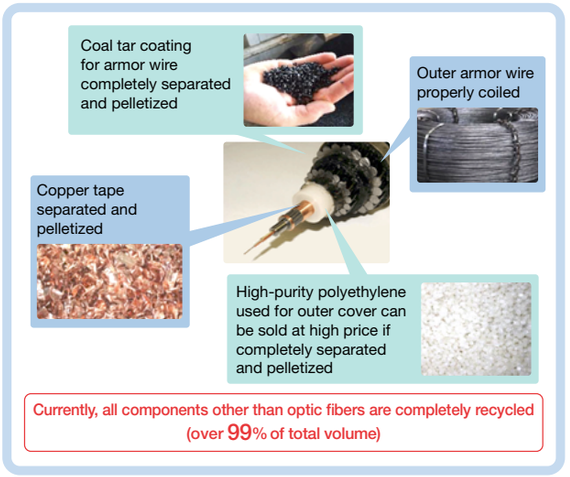


Scope: NTT Communications Corporation and 18 Group companies
* Tabulated general and industrial waste generated from office buildings, including PET bottles, plastic waste, and other sources

Developing a New Recycling Scheme for Subsea Cables

While the typical length of subsea cables laid in Japan's territorial waters is 20 to 30 km per cable, the cable managed and operated by NTT World Engineering Marine Corp., an NTT Communications Group company, connecting Kagoshima and Okinawa prefectures is approximately 260 km long, passing through many islands along the way. When the cable went out of service in 2018, approximately 850 tonnes of waste was expected to be generated, raising major issues in terms of environmental impact and disposal costs.

To address these issues, NTT Communications signed an agreement with South Africa's Mertech Marine, the only company in the world with the technology to recycle subsea cables to the level of raw materials, to build a new scheme to recycle 99% of subsea cables to reduce both environmental impact and disposal costs. Additionally, the scheme is contributing to creating regional safety nets by actively employing unskilled workers at the recycling plant in South Africa through Mertech Marine, and donating 30% of the profits from this recycling initiative to charitable organizations that support the education of impoverished families in Africa and the Middle East.



Co-existing with Nature

Primary Concept

Biodiversity conservation and co-existing with nature, frequently discussed as key environmental issues for achieving a sustainable society, are also critical topics that encompass risks related to business continuity.

We have set “Planning a Future of Natural Harmony” as part of our environmental declaration and established the Biodiversity Action Plan. Under these policies, we are carrying out environmentally sound business activities from the construction of facilities to their operation and dismantling in accordance with the NTT Group Sustainability Design Guideline for Buildings and other guidelines. We are also engaged in local conservation efforts, including the preservation of satoyama (traditional Japanese rural landscapes), local greening initiatives, and reforestation tailored to regional vegetation.

To fulfill our corporate social responsibility, we will continue to place a high priority on conservation of biodiversity throughout our business operations and conduct business while inspecting the progress of initiatives, identifying problems, and making improvements. We will also adopt a multifaceted approach, including the provision and co-creation of ICT/DX solutions and services that contribute to nature-positive economic activities, which can become business opportunities, as well as environmental contribution efforts such as participating in local conservation projects and disseminating environmental information.

NTT Communications Group Biodiversity Action Plan

1. Basic Policy

- **Development Centered on Business Activities**
  The Group recognizes that all activity is inextricably linked to the planet and to biodiversity, understands that the scope and impact at home and overseas are related depending on the nature of a business, and promotes initiatives that are recognized as having a preservation effect.
- **Development Centered on Contribution to Society**
  In partnership with its stakeholders, the Group widely promotes initiatives toward the preservation of biodiversity, regardless of their relevance to its business.

2. Action Guidelines

- **Implement actions that take into account the preservation of biodiversity in business activities**
- **Contribute to the preservation of social biodiversity in business activities**
- **Deepen understanding of biodiversity, promote nature conservation activities together with employees, their families, and the planet**

Main Achievements in Fiscal 2023 and Goals for the Coming Years

We engaged in building, maintaining, repairing, and evaluating facilities in compliance with the Biodiversity Action Plan as well as the concept of the NTT Group Sustainability Design Guideline for Buildings*, established by the NTT Group.
We also played a role in resolving environmental issues through our businesses, disseminated information, and raised awareness during several initiatives that leverage the expertise unique to ICT enterprises, including the provision of ICT solutions for sustainable agriculture for increasing the population of wild ibis as well as support for coral ecosystem surveys and conservation initiatives that we joined as an NTT DOCOMO company, in which we applied our underwater drone capabilities.

In fiscal 2024, we will continue to take action by leveraging our capacity to serve society as an ICT enterprise.

* Guidelines for environmentally sound buildings (e.g., promoting energy efficiency and the use of natural energy, selecting water-saving equipment and protecting water resources, and encouraging resource circulation)

Promoting Biodiversity Conservation Initiatives

The NTT Communications Group is committed to biodiversity conservation toward realizing a future of co-existing with nature. It operates biodiversity-friendly facilities and leverages ICT to minimize the impact on ecosystems, based on an understanding of the relationship between biodiversity and our business. We also strive to pass on abundant biodiversity to future generations through various actions.

These include satoyama conservation for maintaining unique ecosystems and promoting environmental education, protecting ecosystems by submarine cable-laying ships during their operations, assessing the potential environmental impact from the construction and dismantling of telecommunications facilities and data centers, and providing agricultural ICT solutions as part of nature-positive initiatives. We will continue to conserve ecosystems and work with our stakeholders through these efforts.

Initiatives Related to the TNFD

In accordance with the LEAP approach*1 proposed by the TNFD, the NTT DOCOMO Group conducted an analysis*2 of its nature-related dependencies, impacts, risks, and opportunities. The analysis also encompasses the business areas and value chains of NTT Communications. The NTT Communications Sustainability Office, responsible for promoting environmental activities, participated in the analysis through the identification of potential material issues, analysis of the value chain's location-specific issues, determination of material issues, and review of countermeasures, leading biodiversity conservation in our business operations as a member of the DOCOMO Group.

*1 A location-based approach to prioritizing impacts on natural capital and actions to address them. The approach involves four phases: locate interface with nature, evaluate dependencies and impacts on nature, assess nature-related risks and opportunities, and prepare to respond to nature-related risks and opportunities and report to investors.

*2 This report is based on TNFD beta v0.4, released in March 2023. We will review the contents based on v1.0, released in September 2023, and take any necessary actions.

For information disclosure based on the TNFD recommendations from the NTT DOCOMO Group, see:
https://www.docomo.ne.jp/corporate/csr/ecology/protection/tnfd/ (in Japanese only)

Initiatives Related to the TNFD (Continued)

Scenario Analysis and Results within the NTT DOCOMO Group (Focusing on NTT Communications' Business Areas)

STEP 1 Identification of key issues

The analysis following the LEAP approach within the NTT DOCOMO Group includes the corporate business areas managed by NTT Communications. By evaluating the relationship between stakeholder interests and our business operations, we identified these potential key issues: development of land with high conservation value, impact on surrounding ecosystems, resource extraction, and waste emissions.

STEP 2 Analysis of the value chain's location-specific issues

The analysis of the value chain's location-specific issues includes telecommunications facilities and equipment related to NTT Communications' business. Given the nature of our operations, we added water resource use and wastewater discharge as a potential key issue and organized the analysis by value chain stage: upstream, direct operations, and downstream. We then identified risk hotspots and potential risks to be addressed in each value chain stage through the analysis using IBAT*1 and Aqueduct*2, focusing on risk themes such as resource extraction, water use, land development, and surrounding ecosystems.

For example, it has been confirmed that no NTT Communications' telecommunications equipment is located in areas with high water stress across all 56 sites (as of August 2023). For more details on the analysis of the value chain's location-specific issues within the NTT DOCOMO Group, please refer to the information disclosure based on the TNFD recommendations from the NTT DOCOMO Group.

*1 Integrated Biodiversity Assessment Tool, developed by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
*2 A global water risk mapping tool developed by the World Resources Institute (WRI)

STEP 3 Confirmation of key issues

We identified and evaluated risks and opportunities based on the results of STEP 1 and STEP 2.

Risks

Various potential risks (e.g., price increases and unstable supply of telecommunications equipment necessary for offering services may affect our financial plans when there is a shortage of supplies from resource extraction) have been identified, but after reviewing the sites within NTT Communications, we verified that there are no immediate material risks that would affect our business. However, having identified development of land with high conservation value, impact on surrounding ecosystems, and resource extraction as key issues based on the analysis results from STEP 1 and STEP 2, we will assess risks during the development of new sites, including expansions and renovations, and continue to promote initiatives for biodiversity conservation as part of the NTT DOCOMO Group.

Opportunities

As societal interest in biodiversity rises, we believe that actively engaging in conservation efforts not only enhances the Company's social reputation but also drives revenue growth by providing services and solutions that support smart agriculture, fisheries, and the reduction of environmental impact.

P.009 For more information on related governance and risk management initiatives, see the "Sustainability Management" section in the report.

STEP 4 Examination of countermeasures

The NTT DOCOMO Group conducted a GAP analysis, based on the confirmed key issues, to select priority action items and examined countermeasures using the SBTN AR3T framework*3. NTT Communications, in light of the NTT DOCOMO Group countermeasures, then reviewed and assessed the progress of those countermeasures for the identified key issues.

*3 A framework proposed by the SBTN, comprised of a series of four steps (avoid, reduce, regenerate and restore, and transform) to plan countermeasures for actions damage the environment

Key Issues	Countermeasures	NTT Communications' Initiatives
Resource extraction	• Prioritizing suppliers with a focus on biodiversity • Promoting resource circulation	• Prioritizing the selection and procurement of suppliers who engage in or use materials that contribute to biodiversity conservation in accordance with the NTT Communications Corporation Guidelines for Sustainability in Supply Chain*4 • Promoting logistics DX for metal scrap and construction waste based on the Circular Economy Metal Processing Framework (CEMPF); the pilot experiment has been completed, and commercialization discussions are ongoing (as of October 2024)
Development of land with high conservation value	• Efforts to conserve natural environments (such as forests) and reduce impacts on ecosystems	• Proper forest management and conservation through thinning and replanting, leading to the creation of forest-derived credits • Starting the cultivation of healthy forests through tree planting in collaboration with stakeholders (approximately 1,000 trees to be planted by October 2024) • Ecosystem conservation through satoyama (traditional Japanese rural landscapes) preservation activities involving employees and their families
Impact on surrounding ecosystems		

*4 For more details on the NTT Communications Corporate Guidelines for Sustainability in Supply Chain, see:
https://www.ntt.com/content/dam/nttcom/hq/jp/about-us/procurement/pdf/SustainabilityGuidelines_J_202211.pdf

Considerations for Building Construction

Biodiversity-conscious Guidelines

When constructing new buildings such as data centers, we strive to understand the historical, social, geographical, and biological environment characteristics of the building site and its surrounding areas in accordance with the NTT Group Sustainability Design Guideline for Buildings (established in December 2022), and we reflect that understanding into our designs insofar as possible. In addition to our ongoing efforts to promote decarbonization, resource recycling, and co-existence with the environment, we are also working to create an environment that is safe and resilient to natural disasters, which are becoming more frequent and devastating, and to create more people-friendly workplaces to promote diversity, equity, and inclusion as well as health and productivity management. These efforts will contribute to the realization of a sustainable society.

Along with these considerations, we ensure that construction is completed with consideration for minimal noise and vibration and with attention to community beautification during the work. Furthermore, our outdoor air-conditioning units and emergency power generators are designed to generate exhaust heat and noise levels that do not adversely affect the community.

For more information on the NTT Group Sustainability Design Guideline for Buildings, see:
https://group.ntt/jp/design/ (in Japanese only)

Complying with the Environmental Impact Assessment

All developers planning large-scale projects, such as data center construction, are required to conduct a preliminary survey, forecast, and assessment of how the project will affect the surrounding environment, and to submit an Environmental Impact Assessment (EIA) report. The details of all submitted EIA reports are made public, and developers can modify their plans to be more considerate of neighboring residents and the surrounding environment by incorporating into their project plans comments from the national government, local governments, and the public.

NTT Communications has conducted an EIA to proceed with the expansion project for the sixth building of the Osaka 7 Data Center. We used a compliance checklist to ensure that the project is environmentally sound at each stage, including design, construction, and completion, and completed the confirmation of the design phase in October 2024.

Local Landscaping and Greening

We believe biodiversity should be considered in facility design toward contributing to local greenery in our surroundings.

At the Tokyo No. 6 Data Center, one of the largest of such facilities in Tokyo, we have been working closely with the community to promote greening activities by applying a subsidy from the Tokyo Metropolitan Park Association's Urban Green Fund. The green spaces at the site have been divided into two zones, spring/summer and autumn/winter, and planted accordingly so that visitors can enjoy flowers there throughout the year. We seek to achieve harmony between the data center and the surrounding environment. For example, we simulated a wind environment around the building and planted evergreen trees in the southwest corner, which is exposed to wind.

[Spring/summer zone]

[Autumn/winter zone]

Laying Subsea Cables

In constructing its subsea communications cable network, NTT Communications' fundamental policy is to prevent marine pollution. We are signatories to treaties on the prevention of marine pollution and, in addition to complying with environmental legislation, undertake initiatives that place importance on co-existence with marine organisms and the fisheries industry.

The NTT Communications Group company NTT World Engineering Marine Inc., which handles the laying, burying, and maintenance of subsea cables, develops business with a strong awareness of the need to preserve marine environments.

Considerations for the Impact of Laying Subsea Cables

Prior to subsea cable-laying and burying work, we conduct an environmental assessment and cooperate with related government authorities and municipalities in carefully designing cable routes and drawing up construction plans. For example, we duly consider shallow areas for preserving marine environments and generally exclude coral reefs and other inhabited areas when designing cable routes, insofar as possible, or

transplanting them outside the cable-laying area.

There are also cases in which minesweeping operations are undertaken on the seabed prior to laying or burying the cables. We collect debris from the seabed, including fishing nets, rope, and wire pulled out by the minesweeping operations, and we properly process it as industrial waste after returning to port.

[Cables laid on sand to avoid coral reefs]

[Debris collected from the seabed]

Measures to Preserve Ecosystems Taken on Cable-laying Ships

There are concerns that the marine organisms that infest the ballast water used to maintain the stability of vessels will destroy ecosystems after being discharged into other parts of the ocean as vessels navigate from one area to another. In order to prevent the destruction of ecosystems by ballast water, the subsea cable-laying vessels Kizuna and Subaru are equipped with ballast water treatment equipment, in accordance with the Ballast Water Management Convention* set by the International Maritime Organization (IMO), so that they discharge water that does not contain marine organisms.

Furthermore, the ballast water treatment equipment installed on both of our cable-laying vessels is an ultraviolet sterilization system, which does not use chemical substances and thus has low environmental impact. With regard to ship paints, we use those that are in compliance with the AFS Convention (International Convention on the Control of Harmful Antifouling Systems on Ships), which regulates the use of anti-fouling paint containing organic tin compounds on the bottom of hulls.

* Adopted by the IMO in 2004, the convention took effect on September 8, 2017, to prevent the movement of marine organisms across habitat boundaries from affecting the marine environment.

Considerations for the Construction and Dismantling of Relay Stations

Wireless relay stations, the backbone of data communication networks, are often in areas rich with nature such as on hills and islands within national and quasi-national parks, so we emphasize consideration for biodiversity and other natural risks in their operations.

For our four wireless stations nationwide (as of the end of fiscal 2023), we build micro-roads if needed for the patrol and maintenance of these stations while strictly adhering to the law and our own environmental assessment standards. These assessments identify specific concerns associated with construction processes to enable the application of multifaceted approaches for preventing or minimizing impact on the ecosystem.

In addition, when dismantling a wireless station, we strive to restore the environment to its original state by paying careful attention to the presence of rare animals and plants and using local soil for restoration while also consulting local environmental organizations and residents.

Moreover, we have been offering our stations to support ecosystem conservation activities. For example, every year since September 2012, the Amami Ornithologists' Club, an NPO, has convened a meeting for observing the migration of Chinese sparrow hawks on the premises of our wireless relay station site, then located in Amami City, Kagoshima Prefecture. Although wireless relay stations are typically off limits, these events are held under the observation of employees in response to a request that identified this area as particularly well suited for fixed-point ecological monitoring.

[Watching the migration of Chinese sparrow hawks]

Contributing to a Nature-positive Future and Ecosystem Conservation Using ICT

Providing ICT Solutions for Sustainable Agriculture and Bringing Back the Crested Ibis

Since April 2022, we have been conducting a demonstration experiment in Niigata Prefecture's Sado City, a site designated as a Globally Important Agricultural Heritage System, to promote rice farming in rice terraces with reduced or no pesticides and chemical fertilizers. This includes the use and verification of advanced technologies such as drone aerial imaging, robots for weeding rice paddies, and ICT-based water management systems.

In Sado City, where the population is rapidly aging, the use of pesticides and chemical fertilizers has expanded to improve agricultural productivity. However, coexisting with the local ecosystem, including the Japanese crested ibis, a special national treasure, has become a significant challenge. To meet this challenge, we have introduced a variety of agricultural ICT solutions suitable for terraced fields to reduce

costs, minimize labor, and enhance profitability while reducing pesticides and adopting organic, chemical-free farming. Furthermore, we hope to benefit not only human communities but also increase the local wildlife population in the terraced fields by expanding these sustainable farming practices.

Note: This demonstration has been adopted by the Smart Agriculture Production Area Development Demonstration of the National Agriculture and Food Research Organization.

[Robot equipped with AI-supported image recognition for weeding rice paddies]

[Migratory Japanese crested ibises in Sado City]

Improving the Productivity of Kuruma Shrimp Farming for Sustainable Fisheries

Since September 2023, we have been conducting a demonstration project for adopting ICT buoys and Oxygen fighter® at the kuruma shrimp farming ponds of the Shin-Matsuura Fisheries Cooperative and shifted to full-scale operation in August 2024.

In the Shin-Matsuura region, concerns over the potential decline of wild kuruma shrimp led to the start of kuruma shrimp farming about 40 years ago to protect natural resources. Improving the survival rate of farmed kuruma shrimp, however, has remained a challenge.

In response, we introduced ICT buoys to measure oxygen levels in the aquaculture ponds. By preemptively injecting high-concentration oxygen using an Oxygen fighter® during the early morning hours—when oxygen levels typically drop—we have successfully prevented oxygen deficiency in the shrimp, thereby improving survival rates and overall productivity. This initiative not only boosts the income of producers but also reduces the need for pond cleaning and night-time inspections, which are typically required when dissolved oxygen levels drop. Furthermore, the success of this approach is expected to extend to other marine products, supporting the sustainable development of Japan's fisheries industry.

[Oxygen fighter® (left) and box containing ICT buoy communication equipment (right)]

Initiatives to Support Coral Ecosystem Surveys

Due to the rise in sea temperatures and the massive volume of plastic waste, coral bleaching in Okinawa's waters has become a serious problem. In response, NTT Communications has joined the OIST Coral Project* in collaboration with NTT DOCOMO as a special partner, using underwater drones to assist in coral ecosystem surveys and conservation efforts.

* Coral Conservation Project by the Okinawa Institute of Science and Technology (OIST)

[Underwater drone survey in progress]

Connecting the Natural Environment to the Future —Initiatives for Citizen-participatory Ecological Surveys

NTT Communications and Goto City, Nagasaki Prefecture, are conducting citizen-participatory ecological surveys as part of an effort to learn, protect, and make use of the regional resources within the Goto Islands (Shimo-Goto area) Geopark.

This initiative is intended to both observe the distribution of species in the Geopark area and raise awareness about biodiversity conservation by increasing the interest in wildlife of local residents and visitors who are using the Biome mobile app to participate in the survey. In addition, by showcasing Goto City's natural assets through the app and assisting in the development of a sustainable conservation model, we support both regional development and environmental preservation.

[Biological survey in Goto City]

[Biome app]

Contributing to Forest Restoration through Stakeholder Collaboration

The Present Tree Project

Recognizing the important roles of forest conservation for carbon dioxide absorption, water source replenishment, and biodiversity preservation, NTT Communications has aligned with the Present Tree* forest restoration project, operated by the Environmental Relations, Certified Non Profit Organization, which focuses on regenerating forests and promoting regional development across the country. We actively participate in tree planting efforts to support this project in collaboration with stakeholders.

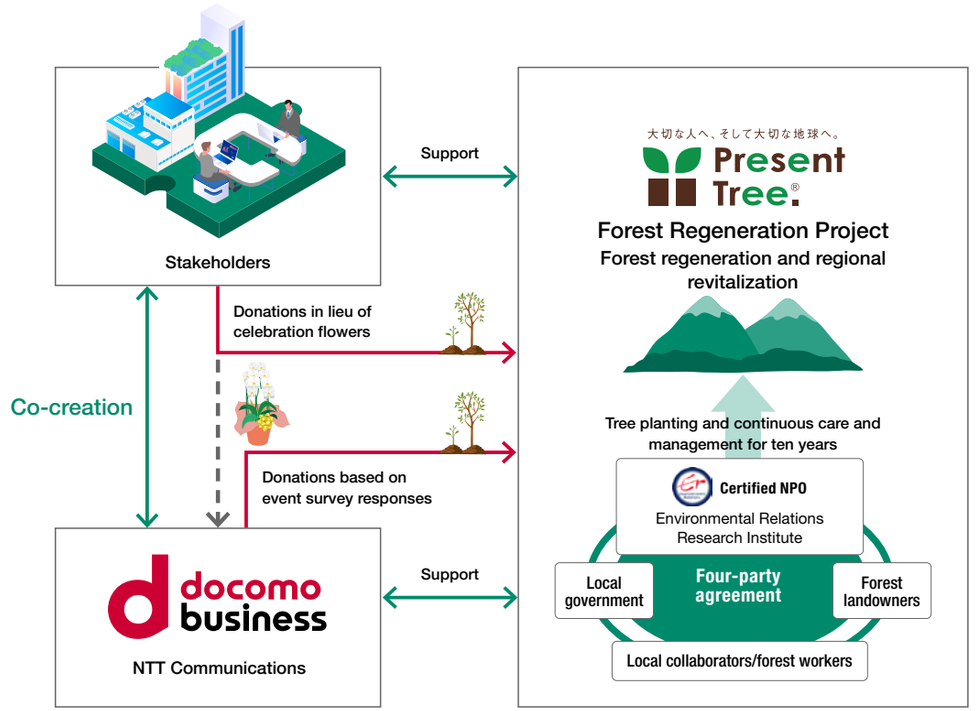
In fiscal 2024, we invited stakeholders to contribute to the Forest Restoration Project as an alternative to sending congratulatory flowers for the appointments of the CEO and vice president and received support from over 50 companies, resulting in donations for planting 852 trees.

Thanks to contributions from our stakeholders, we plan to carry out tree planting in the spring of 2025 as part of the Present Tree in Fuefuki Ashigawa project in Fuefuki City, Yamanashi Prefecture. This effort will include planting broadleaf trees such as Japanese beech, oak, mountain cherry, and Amur cork on a larch felling site, prioritizing the local ecosystem, and ensuring continuous care and management of the forest over the next ten years. We will remain committed to supporting the long-term development of water source recharge forests and the conservation of biodiversity in the Ashigawa headwaters area.

We will also expand our forest conservation initiatives by contributing to forest regeneration projects based on the number of responses collected from attendee surveys at Company-hosted events.

* A project launched in January 2005 by the certified NPO Environmental Relations Research Institute for linking reforestation with regional revitalization. Trees are planted in former development sites, abandoned clear-cut areas, and disaster-affected forests across Japan, where the population is aging and the birthrate is declining. People from the Tokyo metropolitan area become foster parents for these trees, nurturing them over a period of ten years in collaboration with local communities.

[Present Tree Schematic Diagram]



Prevention of Environmental Pollution

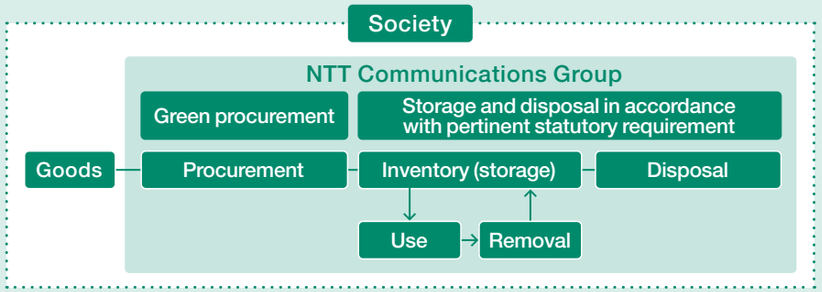
Primary Concept

Everyday production and consumption generating emissions and waste and increasing environmental pollution has long been a social issue.

We are working to reduce emissions and waste generated from our business activities and properly manage and dispose of hazardous substances to prevent environmental pollution and create a safe and secure social environment. In addition, we are seeking to minimize environmental risks associated with business activities, such as environmental pollution, including the leakage of hazardous substances, by formulating guidelines for introducing low-emission vehicles, improving equipment and operations, bolstering management, and conducting thorough inventories.

Chemical substances are properly managed by our maintenance departments in accordance with the Waste Management and Public Cleansing Act, the Law Concerning Special Measures Against PCB Waste, and the Electricity Business Act, which include the assigning of managers. While conducting storage inspections on a regular basis, we maintain a robust system to ensure the rapid coordination of information among senior management and the president in the event of an earthquake or other disaster. We always stay current on changes in environmental regulations, share information among environmental working groups, and optimize our operations in a timely manner. In addition, we are striving to reduce the environmental impact of our supply chain by, for example, urging suppliers to reduce and thoroughly manage the use of hazardous materials based on the NTT DOCOMO Green Procurement Standards.

[Prevention of Environmental Pollution at Each Business Stage]



Main Achievements in Fiscal 2023 and Goals for the Coming Years

We collaborate with other companies in the NTT Group to ensure the proper awareness and communication of environmental laws and regulations, as well as pollution control measures, emission standards, the PRTR Law, and related reporting. We also enhance compliance training and focus on ensuring both legal compliance and effective risk management.

As a result of our ongoing efforts to reduce emissions and waste generated by business activities, manage and dispose of hazardous substances properly, and strengthen compliance education, there were no environmental-related accidents, violations, fines, complaints, or legal issues in fiscal 2023.

The NTT Communications Group has set a target for making EVs account for 100% of the corporate fleet used in Japan by fiscal 2030 while also taking action to significantly reduce GHG emissions from the corporate fleet. To achieve this goal, we have reviewed the number of vehicles and promoted eco-driving to reduce fuel consumption of the corporate fleet across the Group. We have also been working to reduce emissions of other air pollutants while ensuring compliance with relevant laws and regulations.

We will continue to convert the corporate fleet in Japan to EVs and prevent pollution while ensuring Groupwide compliance with those laws and regulations.

Risks and Opportunities

Waste emissions that impact the environment arise not only from our business operations but also from the daily production and consumption activities of all people. As a result, environmental pollution is advancing worldwide and becoming an increasingly serious problem for society. As a company, failing to implement sufficient preventive measures against the leakage or discharge of chemical pollutants from our business activities, or neglecting proper treatment and management, could exacerbate environmental harm, disrupt ecosystems, and potentially lead to health risks for local communities by polluting their living environments. Furthermore, this could result in social criticism, a decline in reputation and trust, and a loss of competitiveness, which could seriously jeopardize our business continuity.

On the other hand, we believe that fostering robust compliance awareness of the harm chemical pollutants can cause, related countermeasures, and proper management methods in accordance with relevant laws will lead to the steadfast prevention of pollution while reducing management and recovery costs. In addition, preventing related accidents and communicating responses to harmful substances both internally and externally will enhance social trust and expand business opportunities.

Initiatives to Address Environmental Pollutants

Preventing Air Pollution

Our business activities produce NOx and SOx emissions, which cause air pollution.

The subsea cable-laying vessels Kizuna and Subaru utilize an electric propulsion system that optimizes the number of engines in operation in accordance with the load from the type of the subsea cable being laid and changes in the weather at sea. By controlling the number of engines in operation, we keep down the amount of heavy fuel oil used while reducing emissions of GHGs as well as NOx and SOx.

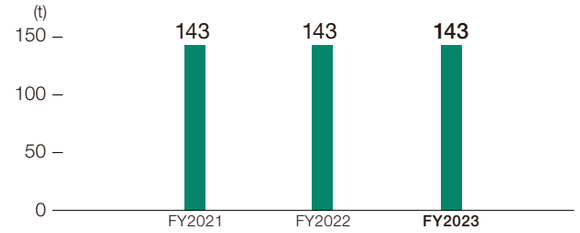
Other sources of NOx and SOx emissions include the gasoline and diesel used by the corporate fleet, as well as the use of backup power supplies in telecommunications facilities. To reduce gasoline and diesel consumption, we will continue to review our vehicle fleet numbers, promote the use of EVs, and encourage eco-driving toward contributing to the mitigation of global warming and prevention of air pollution.

Controlling Ozone-depleting Substances

We dispose of ozone-depleting substances in an appropriate manner. The volume of specified halons used in our fire extinguishing equipment in fiscal 2023 was approximately 143 tonnes, unchanged from the previous fiscal year.

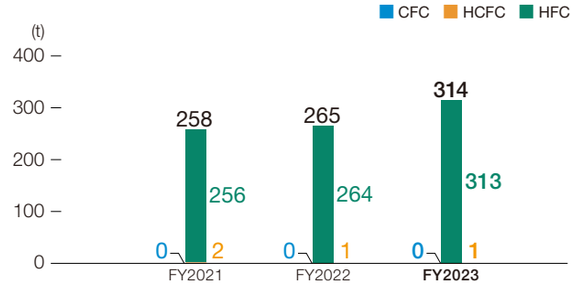
Meanwhile, the volume of specified chlorofluorocarbons (CFCs) used in our air-conditioning equipment in fiscal 2023 saw a temporary rise of approximately 49 tonnes from the preceding fiscal year, reaching about 314 tonnes, due to the active replacement of current units with energy-efficient models in data centers.

[Volume of Specified Halons Used in Fire-extinguishing Equipment]



(Scope: NTT Communications Corporation and 18 Group companies)

[Volume of Specified CFCs Used in Air-conditioning Systems]



(Scope: NTT Communications Corporation and 18 Group companies)

Addressing Asbestos Concerns

Asbestos remediation for buildings and offices involved the implementation of airborne asbestos surveys of buildings for which asbestos had been spray-applied in order to confirm that levels did not exceed statutory limits, as revised in September 2006. Since fiscal 2019, we have been conducting an annual survey of four buildings to confirm that airborne emissions have been below the statutory limit at all buildings subject to legal

compliance. We will continue appropriate measures, such as the removal, containment, or enclosure of asbestos in buildings where it is present, in compliance with manuals issued by the Japan Construction Occupational Safety and Health Association and local authorities.

In response to the revision of the Air Pollution Control Act in April 2021, we have investigated, analyzed, and reported the presence of asbestos in construction waste generated by our business activities, in compliance with national standards. To ensure proper treatment in accordance with the relevant laws, we have also established an internal system for selecting disposal contractors, created operational workflows, and conduct regular internal workshops on related regulations.

Storage and Management of PCBs

The NTT Communications Group appropriately manages devices that contain polychlorinated biphenyls (PCBs). Such devices were used in the past as insulators for electrical facilities. As a policy for PCB storage, we have established a set of guidelines prescribing early detoxification treatment as well as methods for ascertaining conditions and management when the use of equipment containing PCBs is to be continued. We also monitor compliance with these guidelines and track violations of relevant laws as key sustainability performance indicators.

Since fiscal 2021, we have been detoxifying equipment found to contain any PCBs based on the PCB inspection survey conducted in fiscal 2020.

For devices containing high concentrations of PCBs, we have completed the detoxification treatment by the end of fiscal 2023. Meanwhile, we are removing existing low-voltage capacitors that may contain low concentrations of PCBs and are systematically working to complete this by the disposal deadline of the end of fiscal 2026.

[Number of Transformers Stored]

	FY2021	FY2022	FY2023
Number of Transformers Stored	0	0	4

Scope: NTT Communications Corporation and 18 Group companies

[Number of Capacitors Stored]

		FY2021	FY2022	FY2023
Number of Capacitors Stored	High-voltage capacitors	0	0	0
	Low-voltage capacitors	12	4	16

Scope: NTT Communications Corporation and 18 Group companies

[Number of Electric Ballasts Stored]

	FY2021	FY2022	FY2023
Number of Electric Ballasts Stored	276	112	0

Scope: NTT Communications Corporation and 18 Group companies

Chemical Substance Management in Anticipation of Emergencies

Against a backdrop of natural disasters occurring frequently on a global scale, there is a growing public concern over the management systems for environmental pollutants in times of emergency. Leveraging our expertise as an owner and operator of IT infrastructure, we have been thorough in establishing storage and management systems while also bearing in mind the possible occurrence of unlikely events. In the management of PCBs in particular, we have implemented a management system while taking into account factors such as earthquakes, fires, flood controls, lightning protection, puncture resistance, ventilation, and security. By carrying out periodic inspections, we are constantly confirming that such substances are properly managed. Moreover, we maintain a system for quickly confirming the secure storage of chemical substances and reliably ensuring operational readiness in the event of major earthquakes and other disasters in order to prevent damage when one strikes as well as in the occurrence of secondary disasters.

Cases of Major Leakage

There were no incidents involving major leakages in the NTT Communications Group in fiscal 2023.

Transport, Import, and Export of Toxic Waste

We handle PCBs in strict accordance with the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes and the PCB Waste Collection and Transport Guidelines issued by the Ministry of the Environment.