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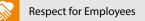
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Activities

# **Contributions to the Global Environment** A Sustainable and Green Future that **Nurtures Our Rich Earth**



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ICT companies are highly expected to engage in environmental protection activities. We have established the Green ICT Vision 2020, which focuses on the realization of a low-carbon society, the promotion of Closed-loop recycling, and the preservation of biodiversity. We are also promoting a multifaceted approach to these areas. In fiscal 2016, we implemented results-based enhancements and reforms and established the Environmental Statement and Eco Strategy 2030 as our new vision.

Moreover, we proactively promote these activities because they are necessary for the upgrading and strengthening of an environmental management framework. We will continue to strengthen our management framework Groupwide. To this end, we will aggressively pursue protection of the global environment in all processes pertaining to our business activities, ranging from reduced electricity use and improvements in efficiency and procurement to operations and waste disposal.

The Group, through its core businesses, will do what it can to establish a society that is friendly to the environment while ensuring that our planet remains healthy for future generations.

## **CSR Priority Activities**

- ◆ Realizing a Low-carbon Future
- ◆ Implementing Closed-loop Recycling
- ◆ Planning a Future of Co-existing with Nature



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## Fiscal 2019 Activity Results and Fiscal 2020 Targets

## Actions Implemented in Line with CSR KPIs

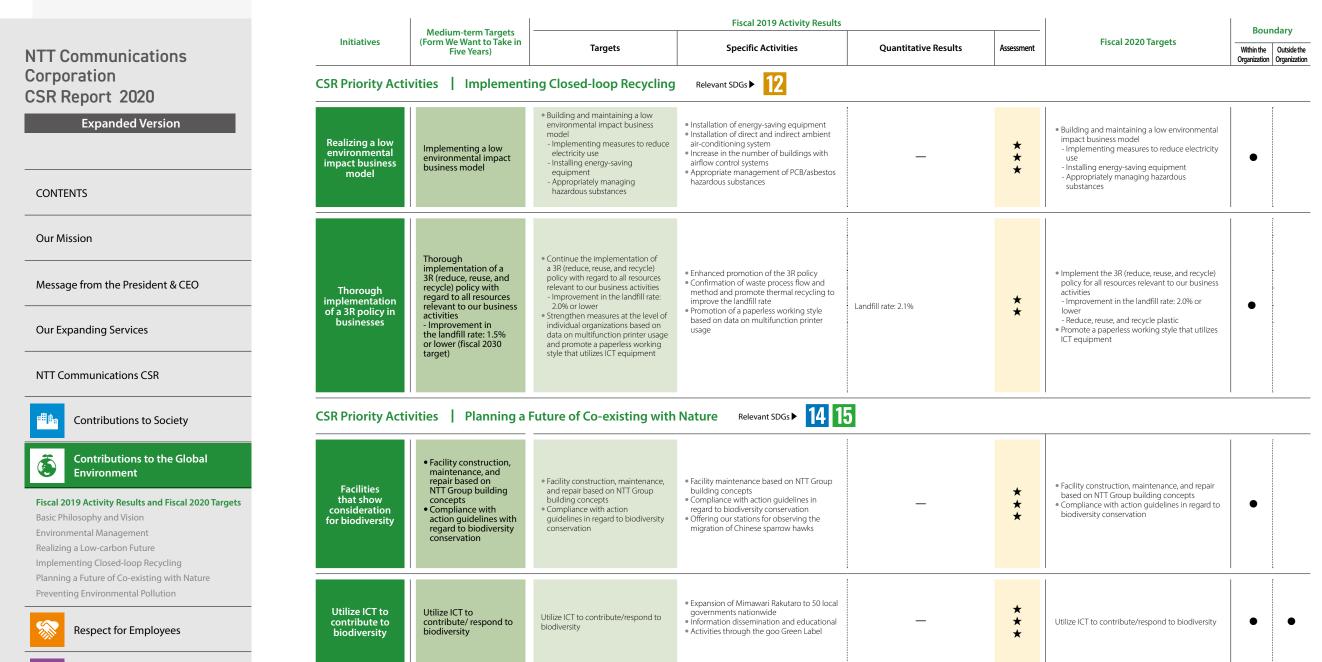
In line with the three underpinning themes of fiscal 2019: "Realizing a Low-carbon Future," "Implementing Closed-loop Recycling," and "Planning a Future of Co-existing with Nature," we worked to reduce the environmental impact associated with all our business activities and achieved Groupwide results. In particular, we helped reduce global carbon emissions by deploying measures for lowering power consumption at more Group buildings, promoted remote work and paperless meetings as workstyle reform initiatives, and improved the landfill rate by promoting the 3Rs (reduce, reuse, and recycle). We also held the fourth biodiversity photo contest.

In fiscal 2020, we continue pursuing various measures with a focus on activities that include reducing electricity consumption, promoting waste recycling, and preserving ecosystems in order to contribute to reducing the environmental impact of our Group as well as society as a whole.

Fiscal 2019 Activity	y Results and Fiscal 2020 Targets
	y nesults and riscal 2020 largets

	Medium-term Targets		Fiscal 2019 Activity Results				Bou	ndary
Initiatives	(Form We Want to Take in Five Years)	Targets	Specific Activities	Quantitative Results	Assessment	Fiscal 2020 Targets	Within the Organization	Outside t
SR Priority Act	ivities   Realizing a	Raise power efficiency per data transmission in our telecommunications	vant SDGs▶ <mark>7 13</mark>					
Cutting carbon emissions from businesses	We will raise power efficiency per data transmission in our telecommunications businesses, including data centers, by at least 10 times compared to fiscal 2013 levels (fiscal 2030 target).	<ul> <li>businesses, including data centers, by at least 10 times in 2030 compared to fiscal 2013 levels (fiscal 2019 target: 3.8 times higher)</li> <li>Implement the following energy management measures to further reduce electricity use</li> <li>Remove equipment that consumes large amounts of power and shut down surplus air-conditioners</li> <li>Use Dash Board to visualize efficiency of air-conditioning and usage of power and air-conditioners</li> <li>Improve airflows and promote air-conditioning controls that take into account external and internal temperatures through visualization</li> <li>Install DASH (air-conditioning control system) at a data center</li> <li>CO<sub>2</sub> emissions: 240,000 t-CO<sub>2</sub> (new calculation method)</li> </ul>	<ul> <li>Adjustment of telecommunications facility intake</li> <li>Improvement of airflow control using humidity sensors</li> <li>Optimization of indoor temperature</li> <li>Air-conditioning control</li> <li>Increase installations of automated air- conditioning control systems</li> </ul>	Fiscal 2019 Results • Power efficiency: Increased by 4.1 times compared to fiscal 2013 • CO <sub>2</sub> emissions generated by NTT Communications alone: 235,000 t-CO <sub>2</sub> (CO <sub>2</sub> emission factor: 0.462 kg-CO <sub>2</sub> /kWh) • Telecommunications facility: 219,000 t-CO <sub>2</sub> • Offices: 17,000 t-CO <sub>2</sub>	* * *	<ul> <li>Raise power efficiency per data transmission in our telecommunications businesses, including data centers, by at least 10 times in 2030 compared to fiscal 2013 levels (fiscal 2020 target: 4.5 times higher)</li> <li>CO: emissions generated by NTT Communications alone: 233,000 t-CO: (CO:emission factor: 0.454 kg-CO:/kWh)</li> <li>-Telecommunications facility: 217,000 t-CO:</li> <li>Offices: 16,000 t-CO:</li> </ul>	•	
Cutting society's carbon emissions through products and services	We will contribute to reducing CO2 emissions across society by at least 10 times more than the NTT Communications Group's own emissions (fiscal 2030 target).	Expand the use of the Environmental Solutions Label System to contribute to reducing CO <sub>2</sub> emissions across society by at least 10 times more than the NTT Communications Group's own emissions in 2030 (fiscal 2019 target is 15.9 times more)	<ul> <li>Maintain and promote the sales of Environmental Solutions Label-certified services capable of contributing to reducing CO<sub>2</sub> in society</li> </ul>	Fiscal 2019 result: 16.5 times more	* *	Expand the use of the Environ-mental Solutions Label System to contribute to reducing CO <sub>2</sub> emissions across society by at least 10 times more than the NTT Communications Group's own emissions in 2030 (fiscal 2020 target is 15.3 times more)	•	(

Achievement levels based on self-assessment **\*\***: Target achieved **\***: Target almost achieved **\***: Target only partially achieved



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## Basic Philosophy and Vision

While emphasizing the philosophy in the Global Environmental Charter, established by the NTT Group, our environmental protection activities take shape as the Environmental Statement, 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 Environmental Charter to promote Groupwide consideration and actions relating to environmental protection from a global perspective. This philosophy and policy form 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.

 
 Web
 > For more information on the NTT Communications Group Global Environmental Charter, see:

 https://www.ntt.com/en/about-us/csr/eco/details.html

## **Environmental Statement and Eco Strategy 2030**

The NTT Communications Group has formulated The NTT Communications Group Environmental Statement as its overarching policy for promoting environmental activities. In the statement, we have expressed how we should act as a company in order to fulfill our responsibilities toward the global environment in the future. We also established Eco Strategy 2030 as a means of identifying priority issues that

should be addressed to realize the future outlined in the statement.

Working in unison, each and every NTT Communications Group employee around the world will engage in environmental activities to realize a future in which people and the planet remain in harmony by providing technologies and services that pioneer eras.

## The NTT Communications Group Environmental Statement

Dedicated to global environmental management for a future in which people and the planet remain in harmony We will address three futures by providing technologies and services that pioneer eras.



Realizing a Low-carbon Future We are contributing to the reduction of CO<sub>2</sub> emissions and facilitating adaptation to climate change risk.



Implementing Closed-loop Recycling We are working toward more effective resource allocation.



## Planning a Future of Co-existing with Nature

We are contributing to the preservation of ecosystems.

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## Eco Strategy 2030

Under Eco Strategy 2030, we have set out specific initiatives to help realize the three futures outlined in the Environmental Statement.

Three Futures We Are Targeting		Initiative
	Contributing to the reduction of CO <sub>2</sub> emissions across society	We will contribute to reducing CO <sup>2</sup> emissions across society by at least 10 times more than the NTT Communications Group's own emissions.
Realizing a Low- carbon Future	Raising power efficiency in our telecommunications businesses	We will raise power efficiency per data transmission in our telecommunications businesses by at least 10 times compared to fiscal 2013 levels.
	Adapting to climate change	We will play our part in adapting to climate change by actively promoting initiatives through all our activities and by collaborating with our stakeholders.
Implementing Closed-loop Recycling	Final waste disposal ratio	We will aim to keep the final disposal ratio of the waste generated by the NTT Communications Group at 1.5% or less.
Planning a Future of Co-existing with Nature	Preservation of ecosystems	We will play our part in preserving ecosystems by actively promoting initiatives through all our activities and by collaborating with our stakeholders.

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## Contributions to the Global Environment | Environmental Management

## Environmental Management

## Promotion Framework for Reducing Environmental Impact

In order to continuously promote environmental protection initiatives in a Groupwide effort, we formed a working group for each relevant issue. Specifically, the NTT Communications Group holds Environmental Protection Subcommittee meetings once a year to formulate an overall plan that encompasses a wide range of issues, including the reduction of greenhouse gas emissions and waste. Through these meetings, we also share information on the results of actions taken and promote the horizontal deployment of various initiatives.

In fiscal 2019, we made particular efforts to expand the use of renewable energy, systematically dispose of PCBs, and also dispose of other waste properly.

In fiscal 2020, we reviewed our environmental management structure in line with new environmental targets, and we will make a Groupwide effort to engage in environmental protection activities and initiatives toward achieving them.

#### Environmental Protection Framework

President	Working Group	Main Tasks
SR Committee (CSR Office)	Greenhouse Gas Reduction	<ul> <li>Plan and implement energy-saving measures at telecommunications, data center, and office buildings</li> <li>Respond to Japanese/foreign laws and regulations covering greenhouse gas emissions, etc.</li> </ul>
(iffice)	Environmental Initiatives at Offices	<ul> <li>Encourage efforts to reduce environmental impact centered on activities to reduce paper usage, eliminate waste, and conserve electricity in office operations</li> <li>Share and commonly apply examples of advanced efforts from each business unit</li> </ul>
Global Environmental Protection Subcommittee (Environmental Protection Office)	Dismantling Telecommunications Equipment	<ul> <li>Thoroughly process and manage dismantled telecommunications equipment in line with the law</li> <li>Plan and implement measures designed to improve the recycling ratio</li> </ul>
onmental P	Construction Waste	<ul> <li>Encourage appropriate processing and recycling of construction waste</li> <li>Submit government reports relating to asbestos removal and reconstruction</li> </ul>
ttee (Envir	PCB Storage and Disposal	<ul> <li>Formulate plans for the appropriate storage and treatment of PCBs</li> <li>Submit PCB management reports to the government</li> </ul>
Subcommi	Container Recycling	• Comply with the Containers and Packaging Recycling Law
Protection	Green Procurement	<ul> <li>Encourage green purchasing</li> <li>Instill throughout the supply chain the Guidelines for Green Purchasing</li> </ul>
onmental I	Environmental Accounting	Build an environmental accounting system and provide performance analyses and reports for management
lobal Envir	Group Company	<ul> <li>Share and disseminate information on environmental protection activities in the NTT Communications Group</li> </ul>
6		(ac of March 21, 2020

(as of March 31, 2020)

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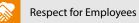
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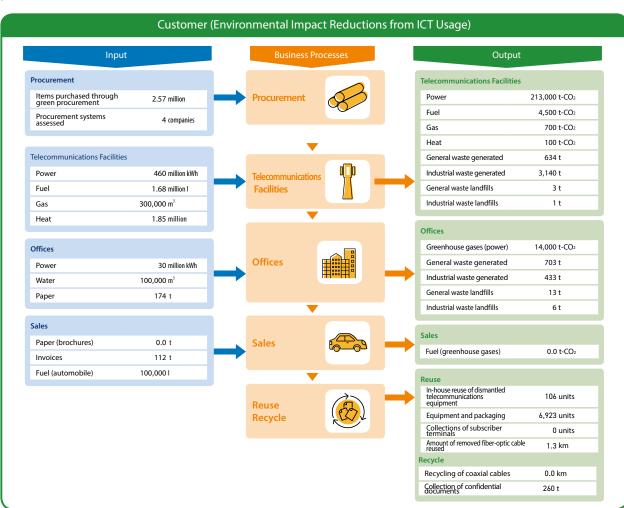
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Continuous Strengthening of Corporate Governance

## **Environmental Impact of Business Activities**

## > Fiscal 2019 Material Flow



## **Estimated of Scope 3 Emissions**

In performing these calculations, we have referred to unit emission databases and other materials produced through studies by the Ministry of the Environment and other government ministries and agencies and expanded the scope of target categories. Of the 15 target categories, our calculations include 11 that are relevant.

## Volumes of Scope 3 Emissions by Category

Category	Category	Emissions (t-CO2)
Purchased goods and services	7.9	270,934
Capital goods	15.0	517,353
Fuel and energy activities not included in Scope 1 and Scope 2	1.1	37,823
Upstream transportation and distribution	0.1	2,584
Waste generated through business activities	0.0	303
Business travel	0.2	7,673
Employee commutations	0.2	6,502
Upstream leased assets	_	Out of scope
Downstream transportation and distribution	_	Out of scope
Processing of products sold	_	Out of scope
Use of products sold	67.0	2,309,263
Disposal of products sold	2.5	86,201
Downstream leased assets	5.9	203,387
Franchise	0.1	4,627
Investments	_	Out of scope
Total	100.0	3,446,650

(Scope: NTT Communications Corporation and 12 Group companies in Japan)

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## **Respect for Employees**

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## > Environmental Accounting in Fiscal 2019

The NTT Communications Group tabulates its environmental conservation costs (categories corresponding to business activities) and the economic benefit derived from its environmental conservation activities (real financial impact) in line with the Environmental Accounting Guidelines 2005, issued by the Ministry of the Environment, and the NTT Group Environmental Accounting Guidelines.

The environmental conservation cost in fiscal 2019 increased by approximately 450 million yen year on year to 2.25 billion yen, consisting of around 920 million yen in investments and about 1.32 billion yen in expenses. This was mainly due to a decrease in investments for environmental conservation. Meanwhile, the economic benefit derived from environmental conservation in fiscal 2019 declined by approximately 180 million yen year on year to 1.56 billion yen, mainly due to a decrease in revenue from sales of cables, metal scrap, and other items.

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

Category		Key Measures		Investment		Expenses	
				FY2018	FY2019	FY2018	FY2019
(1	) Business area cost			593	850	1,064	1,206
		Pollution prevention costs	Oil tank facility for power generator use Management of items using PCBs	142	231	80	164
	Breakdown	Global environmental conservation costs	Measures to reduce CO <sub>2</sub> Emissions resulting from electricity use	450	618	577	526
		Resource circulation costs	Waste disposal and reuse expenses	0	0	406	515
(2	) Upstream/downstream costs	Measures to recover, recycle, and	reuse telecommunications equipment	14	73	52	47
(3	) Administration costs	Environmental conservation mar	agement activities	0	0	63	70
(4) R&D costs Allocated portion of the NTT Group's environmental R&D costs		up's environmental R&D costs	0	0	10	1	
(5) Social activity costs Costs of suppo		Costs of supporting volunteer pa	rticipation	0	0	0	0
(6	) Environmental remediation Costs			0	0	0	0
Тс	otal			607	924	1,191	1,326

#### + Economic Benefits Associated with Environmental Conservation Activities (Real Financial Impact) (Millions of Yen)

Category	Key Measures	FY2018	FY2019
Revenue	Revenues from sales (cables, metal scrap, etc.)	433	239
	Reductions in expenses as a result of measures such as those related to reducing electricity use	517	391
Cost reductions	Reductions in purchase cost as a result of reusing dismantled telecommunications equipment	380	400
costreductions	Decrease in postal and paper costs due to utilization of Mypage (online account page)	422	533
	Other	0	0
Total		1,753	1,565

(Scope: NTT Communications Corporation and 15 Group companies in Japan)

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.

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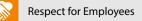


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## **Environmental Management System**

## Acquiring ISO 14001 Certification

Two companies in the NTT Communications Group had acquired ISO 14001 certification as of March 31, 2020. We have contracted outside environmental consultants to perform internal audits once a year to certified departments and companies 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.

## ◆ ISO 14001-certified Companies

Company Certified		Date
NTT Communications	Procurement Promotion and Strategy, Procurement and Billing Department	October 1999
	Solution Services Department	March 2004
NTTPC Communications, Inc.		November 2003

As of March 31, 2020

## > Environmental Audits and Environmental Surveys

Guided by its Global Environmental Charter, the NTT Communications Group shares yearly PDCA and other reports at the Global Environmental Protection Subcommittee, an organization that comes under the CSR Committee. These reports outline details of the various activities administered by the nine working groups that drive the Group's environmental protection activities. 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 environmentrelated accidents, infringements, fines, or complaints in fiscal 2019. 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

NTT Communications issued its Guidelines for Green Purchasing in 1999. In 2010, we brought these guidelines into compliance with the Energy-Saving Performance Guidelines enacted by the NTT Group and added the perspective of ICT-related energy-saving that the Company recognized as an important issue. We also changed the name to the Guidelines for Green Procurement. Application of these guidelines drove NTT Communications to include new factors in its set of criteria applied when selecting suppliers, such as the supplier's actions toward environmental conservation and an environmental conservation element of the procured item. Through its green procurement initiatives, NTT Communications works to improve its environmental protection activities with its suppliers and seeks to commit to further social contribution.

#### Status of Green Procurement (1,000 Units)

	FY2015	FY2016	FY2017	FY2018	FY2019
Green procurement of goods, excluding office supplies	105	90	154	204	257
Green procurement of office supplies	20	20	22	21	24



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## > Environmental Education Initiatives

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 CSR efforts, extending the scope of participation to include not only employees but also their family members and our business partners.

In fiscal 2019, all-employee training sessions covered major international initiatives such as the SDGs, ESG investments, and the Global Risks Report from the World Economic Forum. Additionally, we undertook a range of environmental awareness and educational activities, including a cleanup of the areas around our offices and the seaside, promotion of the ecocap movement, and a biodiversity-related photo contest. Moreover, woodland conservation activities were carried out at NTT Com Solutions and NTT Com Marketing in a bid to deepen employee understanding of the importance of protecting the natural environment.

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## Our Approach

CSR Priority Activities

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Contributions to the Global Environment | Realizing a Low-carbon Future

Realizing a Low-carbon Future

Our range of approaches to reduce CO<sub>2</sub> emissions includes saving energy and improving the efficiency of our facilities as well as offering services that incorporate excellent Low-carbon features and engaging in environmental contribution activities. For our environmental initiatives in relation to Company facilities, we have set targets from two viewpoints: telecommunications facilities and offices, and all of our employees are working together to reduce CO<sub>2</sub> emissions. Particularly, since electricity consumption accounts for more than 90% of total CO<sub>2</sub> emissions from business activities, we can 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.

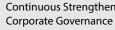
## Primary Concept

While the advancement 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. Against such a backdrop, SDGs 13 is urgently combating climate change. Reducing CO<sub>2</sub> emissions, the main cause of climate change, is a matter of utmost urgency not only for humans but also for the prosperity of all living creatures. As part of our initiative to contribute to the creation of a low carbon society, we set "Realizing a Low-carbon Future" as one of the themes for our Environmental Statement. In order to make our statement concrete, we will take on activities with a strong awareness of specific effects while continuing to strengthen our efforts from a global perspective and taking into account the expansion of our businesses' supply chains.

## Main Achievements in Fiscal 2019 and Goals for the Coming Years

In fiscal 2019, we continued our ongoing 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 airconditioning, and turning off unused equipment. As a result, power efficiency increased by 4.1 times, which exceeded the target of 4.0 times. In addition, when putting our solutions on the market, those assessed as having a certain level of environmental impact reduction benefits are given the NTT Group's Environmental Solutions Label to make visible their effects. Consequently, our contribution to reducing society's CO<sub>2</sub> emissions was 16.5 times the volume of our own CO<sub>2</sub> emissions, thereby exceeding our target of 15.9 times. Going forward, we will further develop these initiatives and commit to realizing a low-carbon society.

In fiscal 2020, we will accelerate our drive to introduce electric vehicles (EVs) and renewable energy and set more ambitious targets to strengthen our efforts to reduce CO<sub>2</sub>.



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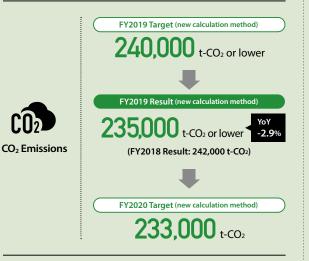




## Continuous Strengthening of Corporate Governance

## **Reduction of Greenhouse Gases**





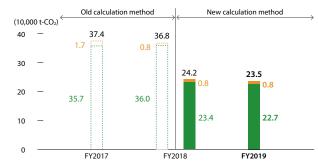
Up to fiscal 2017, we had been disclosing the combined value of emissions generated at our data centers by NTT Communications alone<sup>\*1</sup> and those generated by other data center users\*2 as our own emissions, which are shown by the dotted line in the CO<sub>2</sub> Emissions from Business Activities graph at right. However, since it is difficult for us to monitor and assess initiatives implemented by other companies, we adopted a new calculation method in fiscal 2018 and changed the scope of management to emissions generated by the NTT Communications Group alone (new calculation method:

expressed by the solid line in the graph for CO<sub>2</sub> Emissions from Business Activities at right). Within this new scope, we were able to meet our CO<sub>2</sub> emissions target\*<sup>3</sup> for fiscal 2019, mainly by switching to an electric power company with a lower emission factor. CO<sub>2</sub> emissions per unit of sales were 0.3 t-CO<sub>2</sub>/millions of yen\*4. In fiscal 2020, the NTT Communications Group will remain committed to reducing CO<sub>2</sub> emissions in a concerted manner through ongoing energy-saving activities, research and development of technologies, and implementing new measures including energy saving rules to achieve its target for reducing CO<sub>2</sub> emissions by 1% from the previous fiscal year or below. Furthermore, we intend to continue providing energy-efficient data centers and cloud services to society, having customers' servers and their peripheral equipment including airconditioning, UPS, and lighting integrated at our data center, consequently improving the efficiency of public power consumption.

We will aggressively push forward the introduction of renewable energy toward raising its share of total power consumption to at least 30% by 2030.

- \*1 CO<sub>2</sub> emissions generated by the use of fuel and electricity by the NTT Communications Group.
- \*2  $CO_2$  emissions generated by the use of fuel and electricity by other companies (telecommunication carriers, data center operators, and others)
- \*3 CO<sub>2</sub> emissions were calculated using emission factors obtained from electric power companies.
- \*4 In view of the corporate divestiture that came into effect on July 1, 2019, sales were calculated for the period between July 2019 and March 2020 (794.6 billion yen).

#### CO<sub>2</sub> Emissions from Business Activities Electricity consumption\* E Fuel for corporate vehicles and consumption of heavy oil and gas



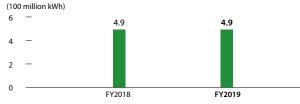
(Scope: NTT Communications Corporation and 12 Group companies in Japan) \*CO<sub>2</sub> emissions were calculated using emission factors obtained from electric power companies.





(Scope: NTT Communications Corporation and 12 Group companies in Japan)

#### Power Purchases (Consumption by NTT Com Group)\*



(Scope: NTT Communications Corporation and 12 Group companies in Japan) \*Calculated based on the new method adopted in fiscal 2018 that excludes power consumed by users other than the NTT Communications Group.

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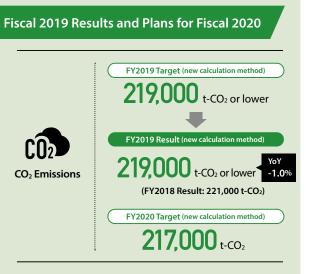


Respect for Employees



Continuous Strengthening of Corporate Governance

## Initiatives Related to Telecommunications Facilities



In fiscal 2019, our CO<sub>2</sub> emissions decreased as a result of 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. Although there was a rise in demand for sales at data centers in Tokyo and Osaka as well as the installation of new cloud servers, we were nevertheless able to achieve our target. CO<sub>2</sub> emissions are rising in fiscal 2020 due to ongoing robust data center and cloud service sales. However, we intend to meet our emissions target at of a yearon-year decrease of 1% by expanding visualization of power usage, implementing newly developed technologies, improving airflow, and optimizing equipment for telecommunications services.

## > Building Cutting-edge Data Centers with Advanced Low-carbon Technologies

Data centers require a constant supply of electric power to operate. As an ICT company, we proactively introduce leadingedge equipment and technologies for reducing the carbon footprint of our data centers.

For example, our newly opened data center features improved cooling efficiency and lower power consumption in its air-conditioning systems owing to the deployment of an indirect external air-cooling system that applies the cooler temperatures outside the building and an air circulation method that blows air from the walls. In addition, we will install an indirect evaporative air-conditioning system for the new data center in Tokyo. This will make us the industry's first to use the system, which is expected to reduce the annual energy cost by 60% compared to a conventional airconditioning system.

We are accelerating efforts to reduce the carbon footprint of our data centers by continuing to introduce leading-edge equipment and technologies.



## > Ongoing Efforts to Cut Air-conditioner Power **Consumption at Telecoms Facilities**

In past efforts to reduce power consumed by air-conditioning, we have implemented a range of measures, including SmartDASH<sup>®</sup> an automated system that visualizes temperature zones in server rooms, 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 around IT

equipment in the aisles between rows of server racks. As a further step, 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 PUE (Power Usage Effectiveness) of each room to improve low-efficiency rooms by implementing thorough airflow improvement, temperature adjustments, and air-conditioning shutdown initiatives. To 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

## > Introducing Solar Power Generation Systems that Actively Use Renewable Energy

Since 2009, NTT Communications has been engaged in power generation using solar power generation systems at its communications and data centers in Tokyo, and four system units are currently in operation. In April 2020, our

Odori Building in Chuo-ku, Sapporo, became the first building in the NTT Group to use renewable energy for all of its power needs. We intend to expand the introduction of the system in the coming years.



NTT Communications



Approx. 345,000 kWh

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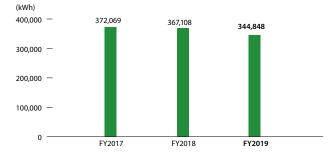
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Continuous Strengthening of Corporate Governance

## Overall Amounts of Electricity Generated by Solar Panels at Data Centers

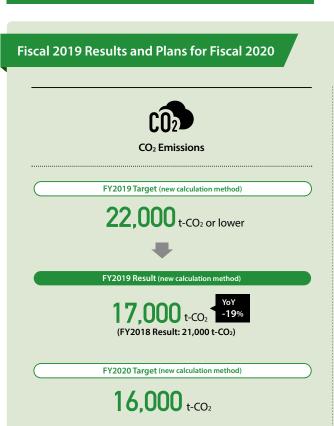


## > Providing Carbon Credits to Support Tokyo's Initiative

NTT Communications donated credits earned from Tokyo's Cap and Trade system to help realize its Zero Emission Tokyo Strategy. Since the Tokyo Metropolitan Environmental Security Ordinance came into force in April 2010, we have been controlling air-conditioning temperatures and improving airflows to reduce CO<sub>2</sub> emissions at the 11 telecommunications and data center buildings that fall within the scope of the ordinance. We received a certificate of gratitude from the Tokyo Metropolitan Government for donating credits equivalent to 100,000 t-CO<sub>2</sub> (excess volume of emissions) that we obtained as a result of our efforts.



## Office Initiatives



Drastic measures are being called for in the form of office initiatives to cut electricity use, while considerations are being made to place a limit on initiatives for communications facilities such as data centers and telecommunications buildings that require a certain amount of continuous power supply to provide their services. In fiscal 2019, we attained our target based on the new calculation method by pursuing energy-saving measures that were not as tight as those implemented in the period following the Great East Japan Earthquake. Due to additional factors, including the relocation of our head office from the Hibiya Building to the Otemachi Place Building, where energy efficiency is high, and the transfer of NTT Plala Inc.'s operations to NTT Docomo Inc., we achieved a significant year-on-year reduction of our CO<sub>2</sub> emissions.

In fiscal 2020, we are targeting year-on-year reductions of 3% to maintain CO<sub>2</sub> emissions at or below 16,000 t-CO<sub>2</sub>. We will implement energy-saving measures that take into account comfortable working environments as well as work efficiency to address the increase in the number of employees working from home to prevent the spread of COVID-19, as well as the revised settings for energy consumption and expanded use of fat clients.

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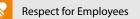


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## **Transportation Initiatives**

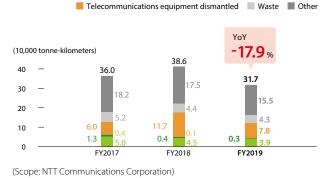
## Fiscal 2019 Results and Plans for Fiscal 2020

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 of required trips, the volume transported, and the transportation distance and by otherwise enhancing logistics.

In fiscal 2019, we worked to reduce the amount of paper by digitalizing sales tools and manuals as well as by expanding web-based applications. As a result, total transportation volume was 317,000 tonne-kilometers. In fiscal 2020, we will continue our efforts to reduce transportation volume by promoting digitalization and the use of Web-based application systems.

• Goods Transportation Volume under the Revised Energy Conservation Law

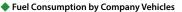
Invoices Connection notes Sales promotion tools



## Reducing Fuel Use by Company Vehicles

To help solve pollution problems and contribute to the realization of a low-carbon society, we have devised measures to introduce environmentally friendly vehicles and are seeking to reduce the volume of fuel used by Company vehicles across the entire Group. We are currently reviewing the number of our sales vehicles and steadily promoting eco-driving and other measures. As a result, gasoline and diesel consumption by Company vehicles in fiscal 2019 totaled 93,000 liters and 8,000 liters, respectively. The combined volume declined by 28,000 liters, or 21.7%, year on year.

In response to the NTT Group's declaration of support for the EV100 initiative in October 2018, NTT Communications plans to make EVs account for 100% of its corporate fleet by fiscal 2030. Following the preparatory phase in fiscal 2019, we will launch a full-scale effort to introduce EVs in fiscal 2020. We will strive to use environmentally friendly energy in our business activities.





> For more information on "EV100," see:

Web https://japan-clp.jp/en

## > Preventing Air Pollution and Promoting Energy **Conservation through Electric Propulsion Ships**

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 A used while reducing emissions of, for example, CO<sub>2</sub>, 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<sub>2</sub> 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.

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

## Cable-laying ship Kizuna

#### Cable-laying ship Subaru (9.557 tonnes)







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## **Reducing the Carbon Footprint of Society** through Our Products and Services

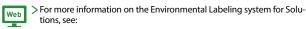
## > Environmental Labeling System for Solutions

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<sub>2</sub> reductions of at least 15%, as assessed through the objective evaluation of environmental impact reduction benefits. The entire NTT Group provides these environmentally friendly services to help reduce the environmental impact of society.

Although no service obtained the Environmental Labeling System for Solution in the NTT Communications Group in fiscal 2019, we have a cumulative total of 10 solutions

registered. Looking ahead, we aim to obtain more certifications for the Environmental Labeling System for Solutions. We will strive to use environmentally

friendly energy in our business activities.



http://www.ntt.co.jp/kankyo/e/protect/label/index.html

## Acquisition of the Eco ICT Logo

We conducted a self-assessment of our CO<sub>2</sub> 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 guidelines for

appropriate CO<sub>2</sub> reduction measures to be implemented by telecommunications carriers, clearly defining the standards for procuring systems and data center services from the viewpoint of reducing power consumption. These guidelines

have been subsequently revised, and version 8.2 was published in February 2020. We will continue to participate in this initiative and work to disseminate the guidelines throughout the Group on an ongoing basis.



\*A council established on June 26, 2009 by five industry organizations: The Telecommunications Carriers Association, the Telecom Services Association, the Japan Internet Providers Association, the Communications and Information Network Association of Japan, and the ASP-SaaS-IoT Cloud Industry Consortium (designated nonprofit organization).

#### > For more information on the Eco ICT Logo, see: Web http://www.tca.or.jp/press\_release/2010/0701\_400.html (Japanese Only)

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

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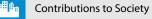
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## Implementing Closed-loop Recycling

Contributions to the Global Environment | Implementing Closed-loop Recycling

## As symbolized by SDG 12 "Responsible Consumption and Production," the thoroughness and extent of penetration of a recycling-oriented society continues to gain in importance as a problem shared by us all. To contribute to the

**Our Approach** 

realization of a recycling-oriented society, the NTT Communications Group works to improve reusing and recycling rates on a daily basis while building business models with low environmental impact. Specifically, we are working to reduce the volume of waste in the three areas of dismantled telecommunications equipment, construction waste, and office waste while also promoting reuse and recycling in various areas of our business.

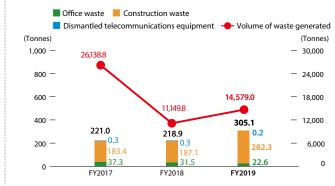
## **Primary Concept**

In order to contribute to the realization of a recycling-oriented society, we are pursuing the creation of a low environmental impact business model in addition to our daily efforts to improve the reusing and recycling rates. Specifically, we organize working groups in the three areas of dismantled telecommunications equipment, construction waste, and office waste, and we are cooperating with other NTT Group companies in the promotion of waste reduction and reuse and recycling in various areas of our business. In addition to our internal efforts, we are leveraging our knowledge, technologies, and knowhow to contribute to the creation of a recycling-oriented society.

## Main Achievements in Fiscal 2019 and **Goals for the Coming Years**

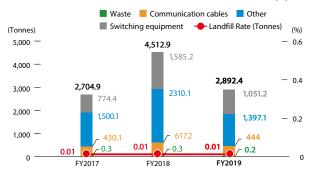
In fiscal 2019, the final disposal of waste from dismantled telecommunications equipment amounted to 0.2 tonnes, construction waste to 282.3 tonnes, and office waste to 22.6 tonnes. The total volume of final waste disposal increased by 86.2 tonnes, compared to the previous fiscal year, to 305.1 tonnes, while the total volume of waste generated increased by 3,429.2 tonnes to 14,579.0 tonnes due to increased construction work for disposing concrete blocks. Going forward, we will thoroughly implement the 3Rs (reduce, reuse, and recycle) in our business activities.

## NTT Communications Group Final Waste Disposal and Total Waste Generation



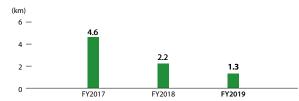
Scope: NTT Communications Corporation and 12 Group companies in Japan Figures are adjusted retroactively to increase accuracy.

#### Total Volume and Landfill Rate of Dismantled Telecommunications Equipment



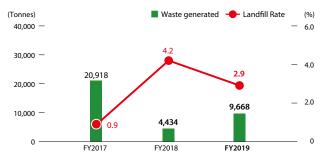
Scope: NTT Communications Corporation and 12 Group companies in Japan Figures are adjusted retroactively to increase accuracy.

#### Volume of Reused Fiber-optic Cable



Scope: NTT Communications Corporation and 12 Group companies in Japan

#### Construction Waste Generation and Landfill Rate



Scope: NTT Communications Corporation and 12 Group companies in Japan

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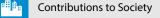
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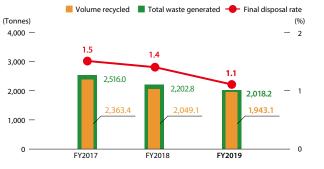
Continuous Strengthening of Corporate Governance

## **Building Business Models with Low Environmental Impact**

## > Initiatives to Improve the Landfill 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 data centers, telecommunications buildings, and office buildings based on their recycling rates. In selecting waste processors, we seek to ensure proper disposal and improve the recycling rate by screening candidates based on our criteria and consigning work to businesses that meet the qualifications. As a result, the landfill rate of office waste, which was 6.1% in fiscal 2013, has been reduced to 1.1%, as of fiscal 2019.

## Total Office Waste and Final Disposal Ratio



Scope: NTT Communications Corporation and 12 Group companies in Japan Figures are adjusted retroactively to increase accuracy.

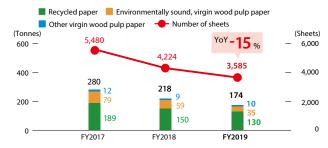
## Thorough Implementation of the 3Rs in Office Buildings

## **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. In fiscal 2007, we established a paper use indicator per full-time employee in order to reduce the use of office paper.

Specifically, we encourage reduction efforts that include curbing the use of paper and increasing the rate of doublesided printing by using printing log data from IC card multifunction printers. Initiative status data per individual and section are collected and disclosed to all employees on a monthly basis. We have been continuously promoting the digitization of operations, paperless meetings that make use of projectors and tablets, as well as remote conferences. As a result, paper consumed per full-time employee (converted to A4-size office paper) was 3,585 sheets in fiscal 2019, which was less than the previous year.

#### Total and Per-employee Office Paper Use



Scope: NTT Communications Corporation and 12 Group companies in Japan Figures are adjusted retroactively to increase accuracy.

## 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.

The recycling rate for plastic in office waste has been improving each year, and we will continue addressing the concern over plastic pollution through our business activities.

#### 📕 Volume 🛛 🗕 Recycling rate (Tonnes) (%) 250 -91 F - 100 82.4 75 1 200 -80 150 -60 103 100 -50 -FY2017 FY2018 FY2019



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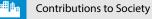
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## **Respect for Employees**



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CSR Priority Activities

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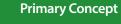
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Planning a Future of Co-existing with Nature

We place a high priority on conservation of biodiversity throughout our business activities, from the construction of facilities to their operation and dismantling, in addition to promoting preservation activities by inspecting the progress of initiatives, finding problems, and making improvements. Moreover, we will implement multifaceted initiatives for environmental contribution activities. including participation in local conservation activities and the dissemination of information.

## **Development of Activities in Line with Action Guidelines**

Having formulated the Biodiversity Action Plan, we have been proactively developing our approaches. There is a growing awareness on a global scale for biodiversity conservation. In the years to come, we will promote a progress check of efforts, identify issues, and promote improvements across the Group, including at overseas bases.



As advocated in SDGs 14 and 15, conserving the biodiversity of life below water and on land, together with the prevention of global warming and the preservation of ecosystems, has recently developed into a major environmental challenge with regard to the creation of a sustainable society. NTT Communications has set "Planning a Future of Co-existing with Nature" as part of its environmental declaration and established a set of action guidelines with regard to biodiversity conservation in order to promote environmental preservation activities. The entire Group, including its overseas companies, will engage in activities that are in line with the Action Plan.

## **Biodiversity Action Plan**

1. Basic Policy: in Compliance with the NTT Group Biodiversity "Approach Concept" Established by the NTT Group

- 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 2019 and Goals for the Coming Years

We engaged in building, maintaining, and repairing facilities in compliance with the Biodiversity Action Plan as well as the concept of the environmentally friendly Green Building\*, established by the NTT Group in addition to ongoing initiatives that leverage the features of ICT enterprises. NTT Resonant disseminated information and raised awareness regarding environmental issues through the "goo Green Label," where users can make a donation to environmental preservation organizations by changing their "goo" web portal to "goo Green Label."

In fiscal 2020, we will continue promoting initiatives by leveraging our capacity to serve society as an ICT enterprise.

\*Environmentally friendly buildings with reduced waste emissions that make use of energy, water, and air-conditioning systems to reduce their consumption of natural resources.

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## **Considerations for Data Center Construction**

## > Local Landscaping and Greening

We consider it is important to take into consideration for biodiversity in facility designs toward contributing to local greenery in our surroundings.

The Tokyo No. 6 Data Center, one of the largest of such facilities in Tokyo, received a subsidy from the Tokyo Metropolitan Park Association's Urban Green Fund and is working closely with the community to promote greening activities. The green spaces at the site have been separated 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

## **Considerations for Data Center Construction**

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 coexistence with marine organisms and the fisheries industry. 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.

## > Assessing Biodiversity

NTT Communications 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 actions to protect ecosystems by cable-laying ships and by assessing the potential environmental impact from the construction and dismantling of relay stations, and we collaborate with stakeholders on these activities as well.

## > Local Landscaping and Greening

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, in shallow sea areas we give consideration to the preservation of the marine environment such as by deciding on cable-laying routes that avoid coral reefs and other inhabited areas.

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 this as industrial waste after returning to port.

#### Cables laid on sand to avoid coral reefs

Debris collected from the seabed





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## > 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 is thus regarded as having 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 Anti-fouling 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.

## Upon 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. And so we emphasize consideration for biodiversity in their operations.

As of March 31, 2020, 8 of our 42 wireless stations were in national parks or guasi-national parks. 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 wildlife 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 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 monitoring the ecosystem.

Chinese sparrow hawk migration

## **Contributing to Ecosystem Conservation Using** ICT

## **Contributing through Products and Services**

The damage to agriculture caused by wild boars and deer is becoming an increasing concern across Japan's farming and mountain communities, and traps are being set to minimize damage.

NTT PC Communications Inc. has developed "Mimawari Rakutaro" as one part of its "IOT service." This is a wildlife observation and alarm device that uses an outdoor sensor that transmits data In this manner, the Company is contributing to countermeasures aimed at minimizing the damage caused by wildlife. Employing the communication services of NTT Docomo to transmit a message automatically to a designated mail address when a trap has been activated, the Mimawari Rakutaro device has brought about a significant reduction of the burden placed on patrols. As one version of Mimawari Rakutaro also comes equipped with a camera, the transmission of images further ensures an immediate response should a person be accidentally caught in a trap. Since first going on sale in July 2011, Mimawari Rakutaro has been used by more than 50 local governments across Japan and contributed to ecosystem conservation in woodlands. As a recent example of its use, Saga City is utilizing subsidies for a Ministry of Internal

## Mimawari Rakutaro

Communications ICT project to realize more efficient countermeasures against wildlife damage.

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## Contribution through the Provision of Information

In response to growing public expectations that the ICT business provide useful information through Internet media, we will continue to proactively use a variety of online media to communicate the importance of biodiversity and encourage a diverse range of people to engage in ecosystem conservation.

## > "goo Green Label" Activities

The "goo Green Label" portal is an initiative for donating a portion of the profits generated through use of the site to organizations engaged in environmental protection and social activities. All users can participate in this initiative simply by changing the top design version of the "goo" web portal to "goo Green Label" and using the search engine. A total of 59 companies, including those in the NTT Group, have signed up as "Corporate Partners," a program that has been recommended for in-house use within those companies. Since its inception in August 2007, donations totaling 57.12 million yen have been made to 46 organizations, the majority of which are NPOs engaged in global environmental protection activities.

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## Our Approach

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**Preventing Environmental Pollution** 

We are seeking to minimize environmental risks associated with business activities, such as pollution and hazardous substance leaks, by formulating guidelines for introducing low-emission vehicles, improving equipment and operations, and bolstering management, education, and training.

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 keep abreast of the revisions to laws through training sessions, share information among environmental working groups, and optimize our operations in a timely manner.

# ◆ Preventing Environmental Pollution at Each Business Stage Society : NTT Communications Group Green Storage and disposal in accordance with pertinent statutory requirement Goods Procurement Inventory (storage) Disposal Use Removal

## Primary Concept

The fact that various effluents and wastes are being generated from production and consumption activities and are causing a rise in environmental pollution is a social issue. As symbolized by SDG 12 "Responsible Consumption and Production," NTT Communications is reducing wastes and effluents generated from its business activities and is managing and handling hazardous substances properly to prevent environmental pollution as well as to promote the realization of a safe and secure living environment.

## Main Achievements in Fiscal 2019 and Goals for the Coming Years

In fiscal 2019, we established our policy and set a target for having electric vehicles account for 100% of the corporate fleet by fiscal 2030. In practice, we continued our initiative to review the number of vehicles owned, introduced lowemission vehicles, and promoted eco-driving. As a result, we succeeded in reducing the number of cars by about 7% year on year and CO<sub>2</sub> emissions by 21.7%. These initiatives led to a remarkable achievement in reducing NOx emissions.

With regard to PCBs, we have disposed of low-concentration PCBs as planned.

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## Respect for Employees



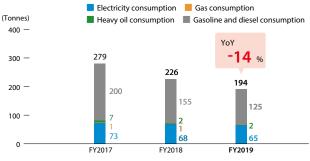
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## Initiatives to Address Environmental Pollutants

## > Preventing Air Pollution

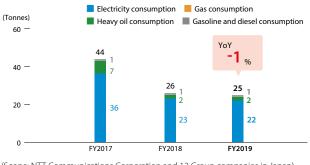
Our business activities produce NOx and SOx emissions, which cause air pollution. 65% of the NOx emissions are attributable to the use of gasoline and diesel in our operational vehicles, while the remaining 35% are emitted as a result of electric power generation at communications buildings and other facilities. Most SOx (86%) is emitted during the generation of electricity that we use. In fiscal 2019, NOx and SOx emissions were 194 tonnes (a year-on-year decrease of 14%) and 25 tonnes (a year-on-year decrease of 14%) and 25 tonnes (a year-on-year decrease of 14%) and event eco-driving and review our vehicle fleet numbers while making efforts to reduce electricity use in our operations toward contributing to the mitigation of global warming and prevention of air pollution.

## NOx Emissions



(Scope: NTT Communications Corporation and 12 Group companies in Japan)

## SOx Emissions



(Scope: NTT Communications Corporation and 12 Group companies in Japan)

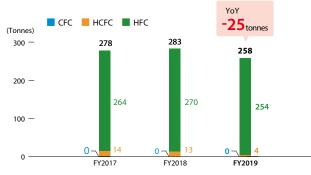
## **Controlling Ozone-depleting Substances**

We dispose of ozone-depleting substances in an appropriate manner. The volume of specified halons used in our fire extinguishing equipment in fiscal 2019 was approximately 143 tonnes, roughly the same as in the previous fiscal year. Meanwhile, the volume of specified chlorofluorocarbons (CFCs) used in our air-conditioning equipment in fiscal 2019 fell by around 25 tonnes from the preceding fiscal year, to approximately 258 tonnes.

## Volume of Specified Halons Used in Fire-extinguishing Equipment



## Volume of Specified CFCs Used in Air-conditioning Systems



(Scope: NTT Communications Corporation and 12 Group companies in Japan)

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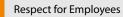
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## > Addressing Asbestos Concerns

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, revised in September 2006. In fiscal 2019, we conducted a survey targeting four buildings and confirmed that airborne emissions were below the statutory limit at all of the buildings subject to legal compliance. At one building, we began removing asbestos from parts of the structure where it could be done guickly, and we intend to complete the work in stages. We will also 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.

## Asbestos Emissions (Unit: t)

	FY2017	FY2018	FY2019
Asbestos Emissions	0	0	0

(Scope: NTT Communications Corporation and 12 Group companies in Japan)

## Storage and Management of PCB

NTT Communications appropriately manages devices that contain polychlorinated biphenyl (PCB). 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. In fiscal 2019, we completed the detoxification process for high-concentration PCBs in electric ballasts that had been

## stored in Hyogo and Hiroshima prefectures.

## Number of Transformers Stored

	FY2017	FY2018	FY2019
Number of Transformers	0	0	0

Scope: NTT Communications Corporation

## Number of Capacitors Stored

		FY2017	FY2018	FY2019
Number of Capacitors Stored	High-voltage capacitors	0	0	0
	Low-voltage capacitors	0	0	0

Scope: NTT Communications Corporation

## Number of Electric Ballasts Stored

	FY2017	FY2018	FY2019
Number of Electric Ballasts Stored	1,480	1,488	123

Scope: NTT Communications Corporation

## **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. 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.

#### PCB storage location

Storage of PCBs



## **Cases of Major Leakage**

There were no incidents involving major leakages in the NTT Communications Group in fiscal 2019.

## Transport, Import, and Export of Toxic Waste

Under a disposal plan based on our policy of detoxifying PCBs at the earliest date, we processed waste stored in Kyushu and Hokkaido in fiscal 2014 and in Tokyo in fiscal 2016, and the remaining waste stored in Osaka was detoxified in fiscal 2019.

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