| Sustainable Management | Environment | Governance | Social |

Feature: Response to Climate Change and the TCFD

Response to Climate Change

In 2014, NEC unveiled its brand statement, "Orchestrating a brighter world," and declared its commitment to transforming into a "social value innovator" aiming to solve various social issues through co-creation with customers. Based on this management strategy, we are working to expand environmental management beyond reducing CO_2 emissions from customer and society through the use of ICT, which has been our focus so far, aiming to provide value to climate change countermeasures in terms of both mitigation and adaptation.

In fiscal 2018, NEC started evaluating the impact of climate change in terms of both risks and opportunities, making reference to the TCFD.*In fiscal 2019, we positioned "Environmental action with a particular focus on climate change" as one of our key "materiality" themes for sustainable growth of the Company, and we have been expanding efforts coordinated with our business divisions to promote future business growth.

*TCFD: Task Force on Climate-related Financial Disclosures

Information Disclosure in Accordance with the TCFD's Recommendations

Climate change has a significant impact on both the risks and opportunities for a company. If the impact of climate change were to emerge suddenly, it could harm the stability of the financial markets. It is therefore important to provide information so that investors can understand the risks and opportunities to companies. In June 2017, the TCFD announced its final report presenting the relationship between climate change and the economy. In response, NEC declared its agreement with the TCFD in 2018. We are disclosing information in line with the TCFD's recommendations on the risks and opportunities related to climate change and working to envisage and understand the financial impact on our future business.

TCFD Recommendation		Disclosure Page
Governance	Disclose the organization's governance around climate-related risks and opportunities.	
	a) Describe the board's oversight of climate-related risks and opportunities.	P. 31
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	P. 31
Strategy	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	
	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	P. 32 – 34
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	P. 32 – 34
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	P. 31
Risk Management	Disclose how the organization identifies, assesses, and manages climate-related risks.	
	a) Describe the organization's processes for identifying and assessing climate-related risks.	P. 31, 32, 34
	b) Describe the organization's processes for managing climate-related risks.	P. 31, 32, 34
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	P. 31, 32, 34
Metrics and Targets	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	P. 34 – 36
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	P. 36
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	P. 34 – 36

TCFD Recommendations and Relevant Pages

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Governance Related to Climate Change

Oversight Structure Provided by the Board of Directors and Role of Management

NEC has positioned environmental issues related to climate change as one of its materiality themes, as well as a key management issue for the Company. The person with the ultimate responsibility for climate change countermeasures is the President and CEO (Representative Director). Reports and proposals regarding climate change countermeasures are debated by management executives at the Business Strategy Council through the executive officer in charge of the environment, before the final decision is made by the CEO as the person with ultimate responsibility. Furthermore, the executive officer in charge of the environment manages the Company's progress based on long-term environmental management targets, directing amendments and improvements as necessary.

Cases where the risks and opportunities arising from climate change are deemed to have a significant impact on business are reported to the Board of Directors. On receiving a report, the Board directs countermeasures through discussion and provides oversight to ensure that the NEC Group's climate change countermeasures are promoted appropriately.

In fiscal 2020, a plan for expanding renewable energy was discussed at the Business Strategy Council and then reported and discussed at the Board of Directors, which approved a specific plan for promoting the idea, including investment.

Internal Structure Related to Climate Change

The environmental management structure for discussing Companywide initiatives related to climate change is the Environmental Management Promotion Council, which brings together the people responsible for promoting the environment in each business unit to set environmental policies and targets related to climate change. The executive officer in charge of the environment confirms these and reports them at the Business Strategy Council, which is a higher-order organization, to obtain approval at the company level. In addition, risks related to climate change are also shared at the Environmental Management Promotion Council. Those that have a significant impact on business are confirmed by the executive officer in charge of the environment and reported as necessary to the Risk Control and Compliance Committee in accordance with the risk management process.

There are three Topic-Based Promotion Sub-groups related to climate change: the NEC Group Energy-Saving Discussion Working Group, the Energy Saving Promotion Staff Conference, and the Global Warming Logistics Liaison Conference. These groups make reports and proposals to the Environmental Management Promotion Council to promote energy saving throughout the entire NEC Group. Matters decided by the Environmental Management Promotion Council are instructed and reported to each business unit and business site committee and so forth to ensure that they are understood by all employees.

▶ Environmental Management Promotion System

Climate Change Strategy

Scenario Analysis

In promoting activities in line with the Course of Action for Climate Change Towards 2050, NEC has addressed the impacts of climate change by analyzing the scenario where the world achieves the Paris Agreement target for limiting temperature rise to within 2°C by the end of this century and the scenario where the temperature rise proceeds to around 4°C. We then examined response measures for each scenario. Specifically, we projected an outlook for the future based on the RCP2.6 scenario of the IPCC, and also considered the Nationally Determined Contributions (NDC) of each country where NEC Corporation conducts business, the World Energy Outlook 2018 of the IEA, and the SSP1 scenario in the "Shared Socioeconomic Pathways" of the Integrated Assessment Modeling Consortium, as well as including consideration of other ICT technology trends and projections. The envisaged periods for the scenarios included the social changes up to 2050, which is the target year for our long-term policy on climate change, and 2030, which is the target year for our SBTs. The geographical areas were the countries and regions where NEC Corporation conducts business. However, we performed a more detailed analysis in areas that are identified by simple analysis as being especially sensitive to risks and opportunities.

For example, in the RCP2.6 scenario, global carbon pricing is progressively introduced to curb greenhouse gas emissions, and the costs associated with CO_2 emissions from our business activities will increase. On the other hand, we believe that promoting CO_2 emission reduction measures using ICT will also lead to business growth.

Furthermore, in the case where the temperature rises by around 4°C under the IPCC's RCP8.5 scenario, an increase in weather disasters around the world will impact supply chains, which is likely to reduce sales and increase expenses for countermeasures. On the other hand, as demand increases for ICT-based solutions to counter disasters, this scenario would also lead to business growth. Based on the results of this scenario analysis, we will consider countermeasures for business continuity and the creation of new businesses.

Going forward, we will continue to analyze scenarios regarding climate change risks and opportunities and to increase the resilience of our organization.

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Risks and Opportunities

The TCFD recommends evaluating items related to risks and opportunities, taking into consideration transition risks such as changes in policies and markets and physical risk due to disasters. The NEC Group has past experiences with having to stop operations of plants in Thailand due to flooding and has therefore established a business continuity plan (BCP) for physical risks, including earthquake countermeasures. We are also evaluating the impact of carbon pricing, which various countries are looking at introducing.

Meanwhile, ICT has a vital role to play in climate change countermeasures. NEC has a host of products, software and services that can provide value in terms of both climate change mitigation and adaptation. We believe that NEC will be able to contribute to an even wider range of areas going forward as climate change countermeasures advance globally.

Physical Risk

Looking at physical risks in the short term, we may experience an increase in expenses for countermeasures to prepare for the impact of abnormal weather.

NEC operates businesses using a large number of data centers in Japan. Stable electric power supplies are essential to the operation of data centers, and if the equipment were to stop because of an electric power supply interruption in a blackout caused by a weather disaster, it would have a serious impact on not only our own businesses but also those of our customers.

In light of these impacts, NEC's data centers are prepared for disaster risk by choosing locations that are resilient against disaster damage and using equipment configurations and building structures that minimize the risk of major disasters. We also install uninterrupted power supply (UPS) equipment to protect our systems from flickers, power outages, and unstable voltages. Long-term power outages are covered by on-site emergency power generators as part of a full suite of facilities for supporting business continuity.

Migration Risk

Short-term migration risk includes a deterioration in our evaluation by customers, business partners, shareholders and other stakeholders in the event that our ESG initiatives and climate change countermeasures are seen to be delayed. This would likely lead to a decrease in fund procurement and sales. Around 70% of NEC's business is with other companies, so strengthening our climate change countermeasures for customers is an important activity for continuing business with them. If our customers considered that our climate change countermeasures were delayed, we could experience a decrease in sales if they halted their business relationships with us and incur additional expenses to continue doing business. For this reason, NEC acquired SBT designation in 2018 as a climate change countermeasure. We have established plans for steadily achieving the SBTs and we are expanding renewable energy in line with these. We will proceed with installing solar power generation equipment at our locations in Japan and overseas, and with switching to procuring green electricity.

In terms of medium-term migration risk, we envisage an increase in expenses with the introduction of carbon pricing. To minimize this impact, NEC is promoting activities on three policies: 1) conduct initiatives that align with targets under the Paris Agreement by acquiring SBT designation; 2) continuously pursue efficient energy use; and 3) expand use of renewable energy. Based on these policies, the NEC Group has decided, for example, with regard to expanding renewable energy, that it will install solar power generation equipment on all available rooftop space at all of its business sites.

Type	Time Frame	Summary	Main Initiatives
Physical risk (acute and chronic)	Short term	Increase in business expenditures for the impact of abnormal weather and countermeasures	Reevaluate data center disaster countermeasures based on actual records of disaster damage in Japan, and strengthen countermeasures such as capital expenditure if necessary.
Migration risk (market)	Short term	Decrease in earnings caused by declining demand for products and services due to an increase in concerns among stakeholders	Acquire SBT designation and promote initiatives to expand renewable energy to achieve them. Periodically survey major customers' climate change countermeasures.
Migration risk (government policy and laws)	Medium term	If NEC fails to achieve goals due to an increase in greenhouse gas emissions pricing due to the introduction of carbon pricing, it will incur expenses	Discuss and decide on countermeasures to minimize risk in the Business Strategy Council. Expand efficient use of energy and introduction of renewable energy towards achieving the SBT goals.

Examples of Climate Change Risk

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Opportunities from Products and Services

Looking at opportunities for products and services in the short term, we expect to increase earnings atop a rise in demand for products, software, and services that contribute to climate change mitigation and adaptation.

■ Contribution to Mitigation
NEC provides ICT solutions in the form of products, software and services that increase the efficiency of customers' operations, enable movement and storage of people and things, and the transition to a paperless operation, and so forth. In this way, introducing ICT solutions helps to reduce overall CO_2 emissions. As many companies are currently promoting measures to reduce their CO_2 emissions, NEC's ICT solutions will find a growing number of opportunities to contribute.

For example, NEC has been providing an information service infrastructure in India since July 2016 that visualizes logistics infrastructure and enables operators to grasp the location information of containers in transit in real time. The service works by affixing RFID tags to containers when they are unloaded or loaded at Mumbai port, and then reading their data through RFID reader/writers installed at the port gates, highway toll booths, inland customs stations, and so forth. It can also connect with other cloud-based systems. With this service, freight owners and transport operators can obtain accurate position information on containers in transit between Delhi and Mumbai (a distance of approximately 1,500 kilometers) simply by searching for the container number. This has resulted in shorter transport lead times, reduced inventories, more accurate production plans, and lower transportation costs. In addition, expected annual CO_2 emissions reductions are estimated at 170,000 tons. From fiscal 2019, the service has been expanded in stages to ports throughout all of India, and currently covers approximately 95% of international sea freighted containers handled in India.

■ Contribution to Adaptation
Due to the massive amount of greenhouse gases that have already been emitted, it is thought that even if CO_2 emissions were brought down to zero immediately, the climate change trend would not stop. This means, that it will be increasingly important from now on to adapt to the various impacts of climate change, such as disasters, water resource shortages, food shortages, and damage to health. NEC is focusing on the social infrastructure business, which can contribute to our adaptation to these impacts of climate change.

For example, NEC provides solutions for improving crop quality and increasing the efficiency of agricultural operations by collecting data from farms, then accumulating, visualizing, and analyzing it. This contributes to eliminating the risk of food shortages associated with climate change. Specifically, we are working with the Kagome group to develop a new system in the field of tomato cultivation. The tomato is the most consumed vegetable in the world; however, producers and processors are currently facing the major challenge as to how they can respond to increasing demand due to rapid population growth. Moreover, in recent years, it has become difficult to predict yields due to drastic climate changes mainly caused as a result of the effects of global warming. Accordingly, through the utilization of ICT, NEC and Kagome have created virtual fields on computer by spatially and temporally quantifying a vast amount of farmland information obtained from sensors installed on farms to measure changes in weather and soil, artificial satellites and drones, as well as information related to natural environments such as the farming activity environment. Based on the results of growth simulations for these virtual fields, we have developed the new "Overseas Large-Scale Farming Analysis Solution" for open-field cultivation in order to realize the development of the most efficient and optimized cultivation methods and the accurate prediction of yields and appropriate harvest times. By 2019, we had undertaken trial testing in various regions including Portugal, Australia, and the United States. Among these, an AI farm operation trial test conducted on a farm in Portugal achieved a harvest of 127

tons per hectare, approximately 1.3 times the national average yield for Portuguese farms, using around 20% less nitrogen fertilizer than the average. This result was comparable to that of a seasoned grower. In 2020, we plan to conduct further trial testing for developing this business in various production areas in Japan.

NEC is also supporting optimization of supply and demand to resolve food loss and waste. By 2050, the global population is expected to increase by 30% from its current 7 billion to over 9 billion. In conjunction with this, demand for food is set to increase by 70%. Meanwhile, some 1.3 billion tons of food is disposed of without being eaten, around 1/3 of global food production. Japan wastes 6.43 million tons of food annually, of which around 55% is due to overproduction or unsold items in the distribution process (manufacturing, wholesale and retail.) NEC provides the "Supply and Demand Optimization Platform," a system for optimizing the supply chain by using ICT, especially artificial intelligence (AI) to reduce food loss and waste. Compared with conventional demand prediction that was conducted separately by the food manufacturing and retail businesses, the supply and demand optimization platform not only optimizes individual processes, but also collects data over the entire value chain and uses AI to increase the accuracy of demand prediction, enabling production, inventory and orders to be optimized across the value chain. Collaborating with the Japan Weather Association from February 2018 and INTAGE Inc. from June 2018, NEC has started developing a business for optimizing supply and demand across the entire value chain of manufacturing, wholesale and logistics, and retail in diverse industries and sectors. Reducing food loss and wastage will help to resolve the issue of food shortages, while at the same time, reducing the energy used to make food that was previously wasted will also contribute to "adaptation."

NEC has numerous other social solutions that can contribute to adaptation to climate change. We aim to continue contributing to the creation of an abundant, bright future by providing value through ICT that helps to resolve the global social issue of climate change.

Type	Time Frame	Summary	Main Initiatives
Opportunities for products and services	Short term	Mitigation – Increase in earnings atop growth in demand for products, software, and services that contribute to CO_2 emissions reduction	When making proposals to customers, we indicate how much of a contribution the solution will make to reducing CO_2 emissions, helping to differentiate ourselves from other companies, which leads to growth in orders. Our solutions can help to reduce CO_2 by optimizing logistics.
Opportunities for products and services	Medium term	Adaptation – Increase in earnings through new solutions to meet adaptation needs	Through use of ICT and big data analysis technologies, we accumulate expertise on how to achieve high crop yields. We are conducting trial testing of this solution in collaboration with food manufacturing and processing companies.
Opportunities for products and services	Medium term	Adaptation – Increase in earnings through new solutions to meet adaptation needs	We assist with supply and demand optimization for optimizing the supply chain by using ICT, especially artificial intelligence (AI), to reduce food loss and waste.

Examples of Opportunities from Climate Change

Course of Action for Climate Change Towards 2050

As a long-term climate change countermeasure, in July 2017, NEC formulated its Course of Action for Climate Change Towards 2050. Under the Course of Action, NEC is strengthening its efforts towards realizing a sustainable management foundation and demonstrating how NEC collaborates with stakeholders in co-creating a sustainable society. We have presented these efforts in four components from the perspectives of climate change mitigation and adaptation.

### I. Building a sustainable management foundation

We will reduce the impact of climate change on supply chains and build a sustainable management foundation by taking steps to achieve zero CO_2 emissions from the entire supply chain and promoting measures against risks throughout the entire supply chain.

1. Aiming for zero CO_2 emissions from supply chains

We have set a target of reducing CO_2 emissions linked to our business operations (Scope 1, Scope 2) to "effectively zero" by 2050. We will aim to reduce energy usage through rigorous energy saving, convert our energy usage to renewable sources, and offset our final CO_2 emissions. As a milestone for this goal, we have formulated reduction targets to be achieved by 2030, which were accredited as SBTs in October 2018. To achieve these targets, we have decided to significantly expand our use of renewable energy. Up to now, our target has been to increase the generation capacity of our installed renewable energy facilities in kilowatts by a factor of 10 compared with fiscal 2012 by fiscal 2021. However, since this target made it difficult to achieve our SBTs, from 2017 we changed our policy to include not only installing facilities at our own sites, but also switching our purchased electricity to renewable sources. We have now revised our previous target for renewable energy usage to increasing generation capacity in capital investment to approximately 75 times the amount compared with fiscal 2018 by fiscal 2021, and we are working to expand this systematically. In addition, towards reducing CO_2 emission from the supply chain (Scope 3), we are proceeding to improve the energy efficiency of products with regard to Category 11, "Use of Sold Products," which is the largest contributor to emissions. We are also promoting measures to reduce emissions in collaboration with suppliers with respect to Category 1, "Purchased Goods & Services," which is the next largest contributor.

2. Strict measures against climate change risks in supply chains

Looking ahead to 2050, an increase in various weather disasters related to climate change will raise the risk of supply chain interruptions. NEC will assess the impact on its global supply chains and strengthen its BCP measures while also promoting measures in coordination with suppliers.
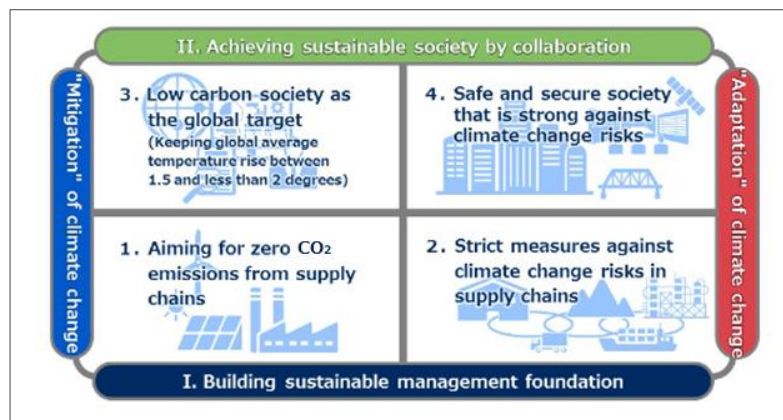
Course of Action for Climate Change Towards 2050

### II. Realizing a sustainable society through co-creation

3. Low carbon society as the global target

Through the provision of ICT solutions, NEC will contribute to reducing the CO_2 emissions of its customers and society. For example, solutions that support value chain reform lead to improved production and logistics efficiency as well as facility utilization rates, with attendant decreases in energy consumption contributing to reduced CO_2 emissions. By proactively driving further innovation and development going forward, we aim to continuously create new solutions that assist with mitigation, and to contribute to realizing a low-carbon society while co-creating with our customers.

4. Safe and secure society that is strong against climate change risks

NEC is focusing on the social infrastructure business, which can contribute to "adaptation" to these climate change impacts. For example, we can help to prepare for natural disasters by monitoring the status of all manner of scenes in the natural environment and urban infrastructure and quickly analyzing the mass of collected data (big data) to predict the occurrence of potential disasters. Our goal is to continuously create new solutions such as these that can contribute to "adaptation."

In addition, in an effort to quantitatively assess the value provided to "adaptation" by ICT, we developed a method for quantitative assessment together with Waseda Environmental Institute, and we have been conducting quantitative assessment since 2014.
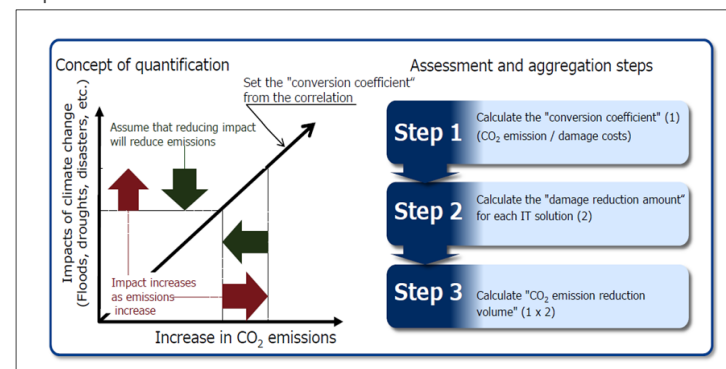
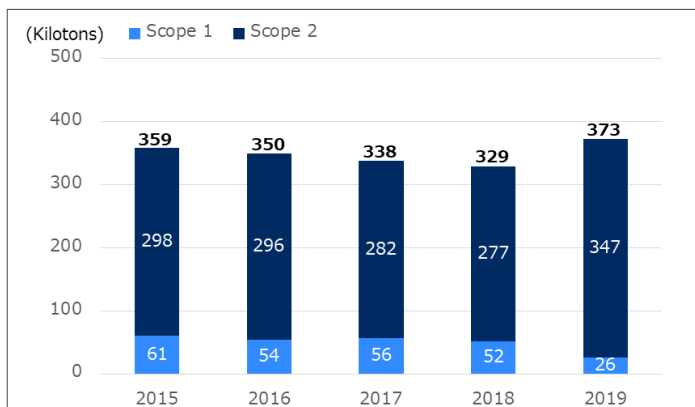

Risk Management for Climate Change

NEC conducts a risk assessment at six-month intervals and when risks that can have a significant impact on business have emerged, the Risk Control and Compliance Committee and the Executive Committee deliberate on the response. The indicated priority order and policy indicated by these bodies is discussed by the Board of Directors, and finally reflected in the decisions on NEC strategy, action plans, risk management policy, and performance indicators.

In fiscal 2020, there were no climate change risks requiring discussion by the Risk Control and Compliance Committee.

Greenhouse Gas Emission Results

Scope 1 and 2 Greenhouse Gas Emissions

Greenhouse gas emissions arising from energy use (absolute value) in fiscal 2020 increased 13% year on year to 373 kilotons. The main factor behind the increase was the widening of the data collection scope among Group companies.

(Kilotons) ■ Scope 1 ■ Scope 2

	2015	2016	2017	2018	2019
Total	359	350	338	329	373
Scope 2	298	296	282	277	347
Scope 1	61	54	56	52	26

Scope 1 and 2 Greenhouse Gas Emissions ☑

* CO_2 emissions from electric power usage from fiscal 2016 onward are calculated based on individual CO_2 emissions coefficients for each electric power company in accordance with the Act on Promotion of Global Warming Countermeasures.

Scope 3 Greenhouse Gas Emissions

Scope 3 emissions for fiscal 2020 were 7,110 kilotons. As a result of revising the calculation method for Scope 3 emissions in fiscal 2020, category 1 emissions increased compared with previous calculation results. The data has therefore been restated retroactively going back to fiscal 2018.

	FY2018	FY2019	FY2020
Before revision	5,821 Kilotons	5,295 Kilotons	-
After revision	7,832 Kilotons	7,795 Kilotons	7,110 Kilotons

Regarding Revision of Scope 3 Emissions

Background to the Revision

NEC has disclosed its Scope 3 emissions since fiscal 2014. The climate change target for fiscal 2021 (use the provision of IT solutions to contribute to reducing CO_2 emissions by attaining a level of CO_2 reduction that is five times the total volume of CO_2 emissions from its entire supply chain in fiscal 2021) was achieved ahead of schedule based on fiscal 2019 results, so the Group has revised its Scope 3 calculation method to evaluate the five times target more rigorously.

Main Changes

Previously in the calculation of Category 1 emissions (from purchased products and services), NEC used its own emissions intensity units based on supplier surveys in order to reflect suppliers' efforts to reduce emissions. These emissions intensity units did not include the environmental impacts from suppliers higher upstream than secondary suppliers. As a result, the calculation produced a lower figure than emissions intensity units based on the Input-Output Table, which are used by many companies. Now NEC has adopted emissions intensity units based on the Input-Output Table, and has also recalculated using a new standard that includes the amount of activity, which was not previously measured. In this way, the fiscal 2021 climate change countermeasure targets have been evaluated more rigorously.

Result of the Revision and Initiatives Going Forward

After recalculating Scope 3 emissions for fiscal 2019, Category 1 emissions increased by a factor of nine, from 43.5 kilotons to 374.2 kilotons, and Scope 3 overall increased from 5,295 kilotons to 7,795 kilotons. In addition, in the calculation of Category 1 emissions, we will use emissions intensity units based on the Input-Output Table, and we will continue our suppler engagement activities, and strengthen and expand them while confirming suppliers' efforts to reduce Category 1 emissions through supplier surveys.

NEC set fiscal 2018 as the base year for its SBTs, and we have therefore revised Scope 3 data retroactively going back to fiscal 2018. Going forward, we will continue to receive third-party inspections to ensure the reliability of our disclosed data and conduct regular evaluations and improvements to improve its accuracy.

Reducing Greenhouse Gas Emissions across the Supply Chain

As a result of applying a new calculation method for data aggregation, greenhouse gas emissions across the entire supply chain for fiscal 2018 came to 7,483 kilotons, a decrease of 646 kilotons from fiscal 2017.

The main factor behind the decrease was the transfer of NEC Lighting, Ltd. to HotaluX, Ltd. on April 1, 2019. NEC Lighting manufactures and sells lighting equipment, which emits a large volume of CO_2 during use. By removing NEC Lighting from the scope of consolidation, the Company's Category 11 (Use of sold products) emissions were significantly reduced.

(megaton)

Scope 1	26

Scope 2	347

Scope 3	7,110
Category 1 End-of-life treatment of sold products	3,820
Category 2 Capital goods	183
Category 3 Fuel and energy related activities not included in Scope 1 and 2	59
Category 4 Transportation and distribution (upstream)	75
Category 5 Waste generated in operations	7
Category 6 Business travel	15
Category 7 Employee commuting	22
Category 8 Leased assets (upstream)	4
Category 9 Transportation and distribution (downstream)	0
Category 10 Processing of sold products	0
Category 11 Use of sold products	2,923
Category 12 End-of-life treatment of sold products	1
Category 13 Leased assets (downstream)	-
Category 14 Franchises	-
Category 15 Other	-

Breakdown of Scopes 1, 2, and 3 ☑

* Calculated based on the "Scope 3 Standard" of the GHG Protocol Initiative.

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Targets and Performance Relating to Climate Change

NEC Group Environmental Management Action Plan 2020/2030

We have set targets for 2020 and 2030 as milestones toward 2050. These targets are set out in the NEC Eco Action Plan as specific strategies and targets, and the entire Group is promoting activities aimed at achieving them.

In fiscal 2020, some fiscal 2021 targets were surpassed and steady progress was made. In particular, in expanding the introduction of renewable energy, NEC Group company KMD Holding ApS, which is based in Denmark, decided on a target of converting all of its energy to renewables in fiscal 2021, and has expanded its green energy since fiscal 2020, introducing about double the target amount.

		FY2020 Result	FY2021 Targets	FY2031 Targets
1. Contribution to "mitigation"	① Reduction in overall CO₂ emissions by society through provision of IT solutions	23.16 megatons	23 megatons	50 megatons
	② Improvement in product energy efficiency (compared with FY2014)	71% improvement	30% improvement	80% improvement
2. Contribution of "adaptation"	③ Preparing for the impacts of climate change through the provision of Solutions for Society	15.90 megatons	Strengthen competitive power of solutions for social issues and expand contribution through business activities	
3. Reduction of emissions from business activities	④ Improvement in CO₂ emission intensity through efficiency of energy use (compared with fiscal 2013)	14.2% improvement	18% improvement	30% improvement
	⑤ Expand introduction of renewable energy	55,420 MWh	28,600 MWh	–

Progress of the NEC Group Environmental Management Action Plan 2020/2030

Climate Change Mitigation Target for 2020

As a KPI for materiality related to climate change, NEC aims to contribute to reducing CO_2 emissions by attaining a level of CO_2 reduction that is five times the total volume of CO_2 emissions from its entire supply chain in fiscal 2021.

In fiscal 2020, we succeeded in making a contribution that is 5.2 times the CO_2 emissions burden* from our supply chain. In fiscal 2019, we achieved a six-fold contribution, but having revised our calculation method for Scope 3, we recalculated our figures going back to fiscal 2018. The following graph shows our performance trend after the revision. We will continue working toward building value and reducing the burden within our supply chain.
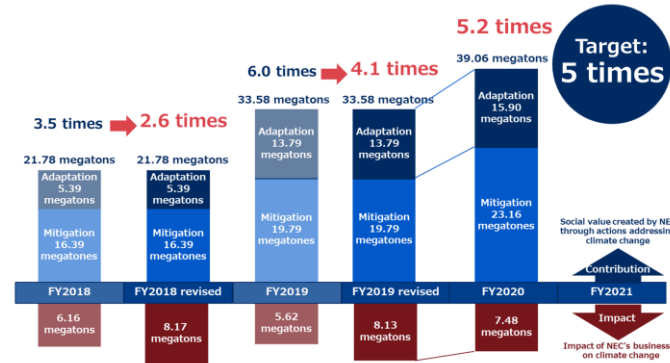
Climate Change Mitigation Targets up to Fiscal 2021

* "Burden" refers to the total volume of CO_2 emissions from our supply chain, such as production sites, offices, and use of products. Within NEC's "contribution," "mitigation" includes the reduction in CO_2 emissions volume for society overall through the products and services we provide to customers, as well as the amount of product energy efficiency improvements, while "adaptation" includes the contribution to controlling CO_2 emissions for society overall using NEC's solutions.

NEC's SBTs

In December 2017, NEC committed to making science-based targets (SBTs) for its greenhouse gas emission reduction targets, aiming to achieve the so-called 2°C target of the Paris Agreement. Subsequently, these targets were designated as SBTs by the Science Based Targets Initiative on October 31, 2018. In fiscal 2020, our targets were categorized under the new standard, "well below 2°C."

Scope 1+2:
Reduce greenhouse gas emissions by 33% compared with FY2018 by FY2031
Scope 3:
Reduce greenhouse gas emissions from products sold by 34% compared with FY2018 by FY2031

CDP Climate Change A List

NEC's climate change initiatives and information disclosure in fiscal 2020 were recognized by its listing on the "A List" of companies holding the highest rating in the CDP* "Climate Change" division.

* CDP:
An international non-profit organization that operates a global information disclosure system for investors, companies, municipalities, and countries, and regions to manage environmental impacts. In fiscal 2020, over 8,400 companies worldwide disclosed information through the CDP.

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Examples of Climate Change Countermeasures

Contribution to mitigation

Smart Factories Using Renewable Energy

Under the Course of Action for Climate Change Towards 2050 announced in 2017, NEC has set a target of reducing CO_2 emissions from its own business activities (Scope 1, 2) to "effectively zero." Our approach to achieving effectively zero in 2050 includes 1) reducing energy usage through rigorous energy saving, 2) converting our energy usage to renewable sources, and 3) offsetting our final CO_2 emissions. As one of the initiatives to achieve this target, we have been promoting an initiative for converting plants and other facilities into smart factories.

At a newly built factory of the NEC Group's production-related company, NEC Platforms Thai Company Limited, we aim to create a state-of-the-art smart factory in Thailand using ICT. Our main initiatives include installing solar power generation equipment, optimizing operation control for air conditioning equipment, changing the nitrogen supply system, and converting all of the lighting to LEDs.

In the installation of solar power generation equipment to provide a source of renewable energy, we have installed a megasolar system with a total electric power capacity of 1,400 kW (1.4 MW) covering the entire roof area of the factory building, office building, and parking building, totaling 8,330 m^2. The system is expected to generate 1,900 MWh of electricity every year.

Since the air-conditioning equipment accounts for a significant portion of the plant's electricity use, we have installed controls over the number of units in operation and an inverter control. These can automatically control the equipment in response to changes in the environmental load due to operating status, temperature, and the status of people present in rooms, helping to reduce electricity use.
   For the nitrogen supply system, we purchased nitrogen that we previously manufactured, helping to reduce costs. The air compressor equipment has a controller for the number of units installed to enable electricity-saving operation.
   For the lighting equipment, we have installed LEDs throughout the plant, including the assembly area work tables in the factory, adding switches that allow people to turn lights on and off as needed, which also helps to reduce electricity use.
   In addition, we have also installed a Factory Energy Management System (FEMS) to enable visualization and

control of operation status by gathering data from these facilities so that we can monitor the control status and make further improvements.

By introducing renewable energy and enhancing the efficiency of these energy facilities, we expect to reduce the plant's overall energy usage by about 40%.

The Thai plant is NEC's first step in achieving production with zero CO_2 emissions, and we now plan to install solar power generation equipment on the roofs of all NEC Group facilities where it can be installed.

Air conditioning equipment control panel

Nitrogen supply system

Status of Major Solar Power Generation Installations since Fiscal 2019

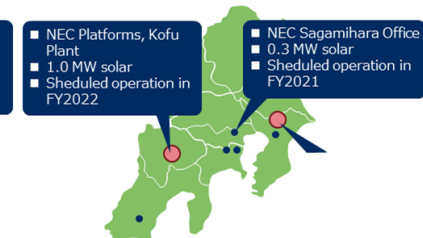- **Overseas: NEC Platforms Thai Company Limited plant**
- **Japan: All business sites, Group companies**

(Thai)
- NEC Platforms Thai Company Limited
- 1.4 MW solar
- Operational from September 2019

- NEC Platforms, Kofu Plant
- 1.0 MW solar
- Sheduled operation in FY2022

- NEC Sagamihara Office
- 0.3 MW solar
- Sheduled operation in FY2021

- ⬤ ··1 MW or larger (1 MW = power for around 400 average households)
- ⬤ ··10 kW or larger

NEC Platforms Thai Company Limited

Sustainable Management	**Environment**	Governance	Social	24	Fiscal 2020 Environmental Activity Highlights	**30-38 Feature: Response to Climate Change and TCFD**
				25	Environmental Action with a Particular Focus on Climate Change	39-44 Initiatives in Products and Services
				26-29	Environmental Policy and Management	45-51 Initiatives in Production and Office Sites

Examples of Climate Change Countermeasures

Contribution to adaptation

NEC Smart Cities

NEC is undertaking global expansion of its initiatives to promote safety, security, and comfort by transforming cities to make them smart cities, using advanced technologies such as biometrics, including facial and fingerprint recognition, image analysis powered by AI, and IoT. Among our responses to environmental issues through smart cities, we have implemented disaster readiness through analysis of weather observation data using ICT and AI technology, CO_2 reduction through the construction of optimal waste collection routes, and reduction in waste. Looking ahead, we will use ICT, IoT and other advanced technologies to prevent and mitigate natural disasters in cities.
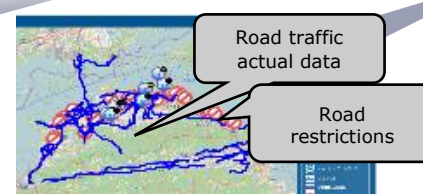

Examples of Cities in Japan Engaged in Smart City Initiatives by NEC

▶ Smart Cities

Disaster Prevention Initiatives at Smart City Takamatsu

Kagawa Prefecture faces the Seto Inland Sea, and experiences a warmer climate with relatively fewer natural disasters compared with other areas. However, in the past few years the prefecture has been working urgently to prepare natural disaster countermeasures over a wide area in preparation for disaster damage from torrential rains and so forth caused by climate change. At Takamatsu City in Kagawa Prefecture, workers and students from nearby municipalities gather because it is a core city, giving rise to needs for disaster prevention over a wider area by rapid information sharing between local governments during disasters. However, data for conducting disaster countermeasures, such as weather and traffic information, is distributed across different systems operated by government and private organizations, creating a need for a system for integrating data in an information linking infrastructure.

To solve this issue, NEC has been working with Takamatsu City since fiscal 2018 to promote the "Smart City Takamatsu' project, making use of ICT, IoT, and other advanced technologies for city development. As part of this effort, we are working on rapid information linkage to assist disaster prevention over a wide area.

Tide and river level information (Municipality, Meteorological Agency)

Road traffic actual data and restrictions (Private sector, Prefectural government)
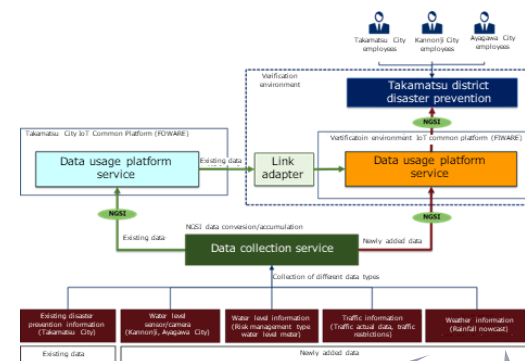
Road traffic actual data

Road restrictions

Weather information (Private sector)

Time series display of rainfall distribution

District disaster prevention requires a system that can centrally manage various data and protect the safety of residents. We began by collecting various kinds of data required for district disaster prevention, such as river level sensor data collected by local governments, and data published on systems operated by government agencies and private-sector organizations (water level, tide level, traffic, and weather). The data were accumulated and concentrated on a shared IoT platform and converted into a standard uniform data. This enables district disaster prevention data to be displayed simultaneously together on a dashboard, enabling rapid sharing between people responsible for disaster prevention and multiple local governments, which promotes situational understanding.

We are also focusing efforts on support for flood countermeasures. Recent concentrated torrential rainfall caused overflows and resulting flooding in medium-sized and small rivers in urban areas as reservoir volume overwhelmed drainage capacity for a short time, causing massive damage to the area. The incident has prompted research into river level prediction using AI. Up until now, the status of river overflows has been ascertained by direct inspection undertaken by local government employees; however, AI analysis based on water level data and weather data such as rainfall can produce highly accurate predictions of river levels. In the future, this technology is expected to aid in encouraging residents to evacuate early before flooding occurs.

Looking ahead, NEC aims to increase cooperation with local governments around Takamatsu City and create safe, secure cities for residents through district disaster prevention.

Takamatsu City Dashboard

City Resident Dashboard