# Environmental Action with a Particular Focus on Climate Change

The diverse impacts of climate change include an increase in natural disasters caused by abnormal weather, depletion of water resources, and effects on the demand and supply balance of food. NEC believes it can use ICT to alleviate the impacts of these environmental issues and contribute to the realization of a safe, secure society with a robust ability to withstand risks.

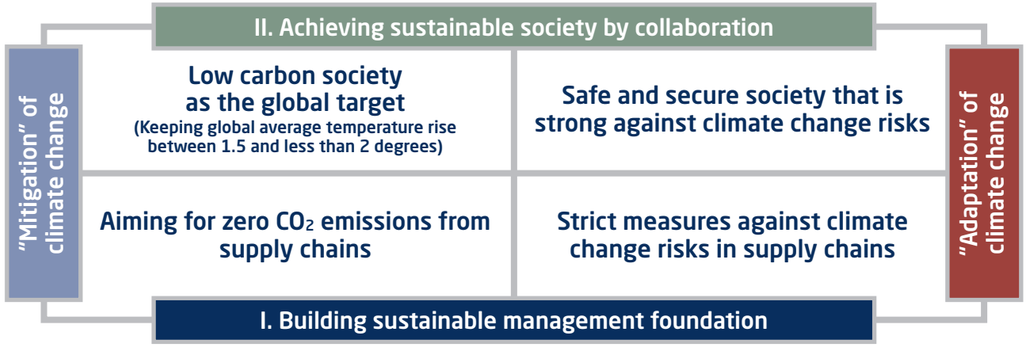
At NEC, we have positioned "Environmental action with a particular focus on climate change" as part of its "materiality," a selection of priority management themes from an ESG perspective. We are engaged in efforts to reduce $CO_2$ emissions from our business activities by implementing thorough energy-saving measures and switching to renewable energy, while also developing and supplying solutions that contribute to climate change mitigation and adaptation.

## Aiming to Reduce the Company's $CO_2$ Emissions to "Effectively Zero" by 2050

In July 2017, NEC formulated "guidelines on climate change measures from a long-term perspective up to 2050," aiming to strengthen its sustainable management base and promote creation of a sustainable society together with customers.

Under theses guidelines, NEC aims to reduce $CO_2$ emissions (Scope 1 and Scope 2) from its business operations to effectively zero by 2050.

### Guidelines on Climate Change Measures from a Long-Term Perspective up to 2050




### NEC's Greenhouse Gas Emission Reduction Targets Approved by the Science Based Targets Initiative

NEC's greenhouse gas emissions targets were approved by the Science Based Targets (SBT) initiative as being "science-based" for achieving the 2°C target of the Paris Agreement. Toward achieving these targets, NEC set a new target of increasing its use of renewable energy in fiscal 2019 by 75 times compared to fiscal 2018, and started initiatives toward this goal.

**The NEC Group's SBTs**

| | |
|---|---|
| Scope 1 + 2*1 | Reduce greenhouse gas emissions by 33% compared to FY2018 by FY2031 |
| Scope3*2 | Reduce greenhouse gas emissions from products sold by 34% compared to FY2018 by FY2031 |

*1 Total of Scope 1 (direct greenhouse gas emissions from sources that are owned or controlled by the Company) and Scope 2 (indirect greenhouse gas emissions from consumption of purchased electricity, heat or steam)
*2 Scope 3 (indirect emissions for all companies not included in Scope 1 + Scope 2 (the supply chain))

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

## Milestones for the 2050 Guidelines

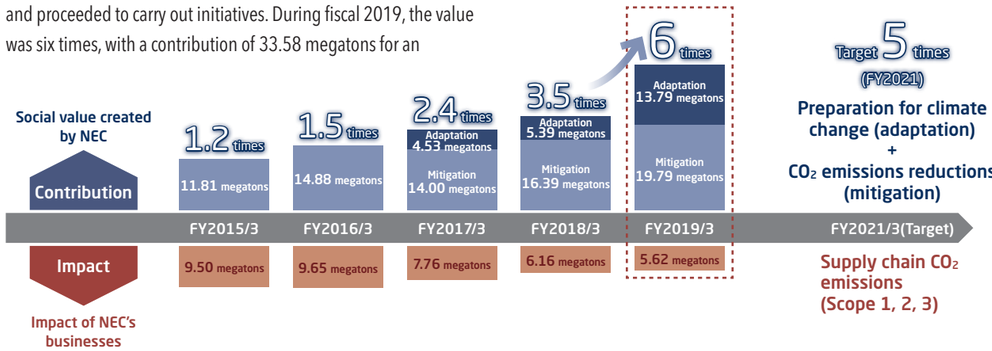
NEC has established the NEC Group Environmental Management Action Plan 2020/2030 as a milestone for realizing its guidelines for 2050. As part of this, we are aiming to contribute to reducing $CO_2$ emissions from our customers and society through the provision of IT solutions as a measure for climate change mitigation, targeting a reduction of 23 megatons by fiscal 2021, expanding to 50 megatons by fiscal 2031. Moreover, we will reduce $CO_2$ emissions from our own business operations by improving efficiency and shifting to renewable energy.

### NEC Group Environmental Management Action Plan 2020/2030

| | | Fiscal 2021 | Fiscal 2030 |
|---|---|---|---|
| 1 Contribution to "mitigation" | 1 Reduction in overall $CO_2$ emissions of customers and society through provision of IT solutions | 23 megatons | 50 megatons |
| | 2. Improvement in product energy efficiency (compared to products in fiscal 2014) | 30% improvement | 80% improvement |
| 2 Contribution of "adaptation" | 3. Preparing for the impacts of climate change through the provision of Solutions for Society | Strengthen competitive power of solutions for social issues and expand contribution through business activities | |
| 3 Reduction of emissions from business activities | 4. Improvement in $CO_2$ emission intensity through efficiency of energy use (compared to fiscal 2013) | 18% improvement | 30% improvement |
| | 5. Conversion to renewable energy (compared to fiscal 2012) | 10 times | – |

### Climate Change Mitigation Target for 2020

In line with this action plan, in 2014 we set the target of "achieving a five-fold increase in value created in terms of climate change countermeasures through the provision of NEC products and services compared to the $CO_2$ emissions from NEC's supply chain," and proceeded to carry out initiatives. During fiscal 2019, the value was six times, with a contribution of 33.58 megatons for an environmental load of 5.62 megatons, representing a significant improvement from 3.5 times in fiscal 2018. This reflects a stronger approach to our suppliers and an increase in provision of disaster measure-related solutions by domestic subsidiaries.




## Agreement with TCFD Recommendations

Climate change will have a major impact on management in terms of both risks and opportunities, and there are increasing calls for companies to disclose information related to their response to climate change. In light of this situation, in July 2018 NEC expressed support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). In line with the TCFD recommendations, we will evaluate transition risks, such as changes in policies and markets, as well as physical risks due to disasters, and so forth, and discuss countermeasures for them. In addition, we will hold ongoing discussions with business divisions aimed at expanding the value they provide by treating climate change as an opportunity. Finally, we will reflect the results of these discussions in our business plans and enhance our disclosure of information to stakeholders.

# Dialogue with Stakeholders for Improving Management from an Environmental Perspective

NEC Corporation has been holding dialogues with stakeholders since 2016, aiming to promote understanding of its environmental initiatives and to ascertain the opinions of external experts and the ESG information that investors require with a view to improving its initiatives and information disclosure going forward.

## Dialogue with External Experts Regarding Environmental Action with a Particular Focus on Climate Change

In March 2019, NEC conducted a dialogue with experts to find out what is needed to make environmental action with a particular focus on climate change into one of the Company's sustainable growth enablers. The dialogue included the Senior Executive Vice President and CFO of NEC Corporation, the Senior Vice President and CSCO, who is responsible for promoting environmental management, and the person responsible for promoting global business. They talked with the external experts about sustainable management, finance, and responsible investment. The dialogue clarified issues such as treating environmental issues as management priorities and a recommendation to share best practices for contributing to environmental issues internally and disseminating information outside the company.

Photograph from left:
**Toshiyuki Imamura**
Managing Director, Responsible Investment Department
Nomura Asset Management Co., Ltd.
**Mariko Kawaguchi**
Chief Researcher
Daiwa Institute of Research
**Peter David Pedersen,**
Co-Founder,
Next Leaders' Initiative for
Sustainability (NELIS)

For further information, please refer to Sustainability Report 2019
**"Environmental Action with a Particular Focus on Climate Change"**

## Dialogue with CDP* Executive Chairman Paul Dickson

In June 2019, we conducted a dialogue between Executive Chairman Paul Dickson, who is one of CDP founders and NEC Corporation's Executive Vice President (CHRO) and Senior Vice President (CSCO). With regard to NEC Corporation's activities to reduce $CO_2$ emissions throughout its supply chains and the actual examples of climate change countermeasures through its business, Mr. Dickson commented that NEC would have an increasing number of opportunities to contribute to climate change issue by using its IT solutions and NEC could play a role in leading the activities globally going forward.

Photograph front left: **Paul Dickson**
CDP Executive Chairman

* CDP: An international NGO that studies, evaluates, and discloses environmental initiatives of companies and municipalities.



# Examples of Providing Environmental Value through Business

## Forest Fire Monitoring and Management System in Indonesia

In Indonesia, forest fires caused by burning off fields have led to atmospheric $CO_2$ emissions and loss of forests, as well as harming the health of the public due to haze, including in surrounding countries. They also cause financial losses due to delayed flights and shipping. Reducing such damage and preventing forest fires has become an urgent priority.

NEC has been collaborating with Sumitomo Forestry Co., Ltd. since November 2017 on a private-sector technology promotion project of the Japan International Cooperation Agency (JICA). We are working with the University of Palangka Raya and the Central Kalimantan Regional Disaster Management Agency to promote the project as the "Collaboration Program with the Private Sector for Disseminating Japanese Technologies by JICA." The project supports a total range of functions from the detection of fire outbreaks and the identification of their location to the dispatch and management of firefighting teams. In fiscal 2019, the project system was evaluated using a mock fire to verify its effectiveness. Local firefighters confirmed that they could use the system to detect the fire outbreak, dispatch firefighting teams, and grasp the progress of firefighting.

Based on the results of the implementation evaluation, we will improve the system and its operation, with a view to full-scale introduction and expansion in fiscal 2020.

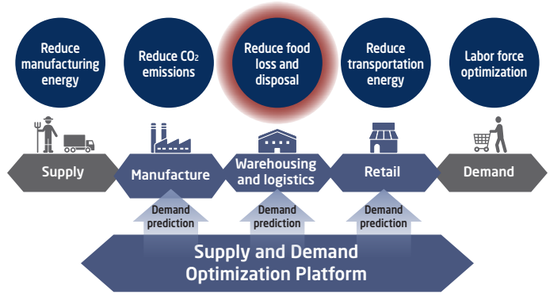

Fire detection screen image using infrared camera

A group photograph with local participants in the evaluation

## Optimizing Supply and Demand to Resolve Food Loss and Waste

By 2050, the global population is expected to increase by 30% to over 9 billion, with demand for food set to increase by 70%. Meanwhile, 1/3 of global food production, some 1.3 billion tons, is currently disposed of without being eaten. Japan wastes 6.43 million tons of food annually, of which over half is due to business-related losses such as overproduction or unsold items in the distribution process (manufacturing, wholesale and logistics, and retail.)*

* Ministry of Agriculture, Forestry and Fisheries "Food Loss Amount (Estimate for Fiscal 2016)" (April 12, 2019)




NEC provides the "supply and demand optimization platform," a system for optimizing the supply chain by using ICT, especially AI, to reduce food loss and waste. Conventional demand prediction was conducted separately by the food manufacturing and retail businesses; however, 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 the 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 sales in diverse industries and sectors.

Looking ahead, we will make efficiency gains across the entire value chain by using the supply and demand optimization platform. In doing so, we will contribute to SDG 12 target 12.3* and help to reduce consumption of energy and resources.

* Target 12.3: "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."

Further details can be found in Sustainability Report 2019 **"Environmental Management Initiatives."**