



FY 2020 Briefing on ESG

Environmental Action with Particular Focus on Climate Change

Initiatives to create new environmental value to drive growth

December 5, 2019

Shigeki Shimizu

Senior Vice President, CSCO (Chief Supply Chain Officer)

Progress of Environmental Activities at NEC



The process of creating value through consideration of environmental issues

Recognize social issues

- Global warming/ climate change
- Resource circulation (Circular economy)
- Management of chemical substances etc.

Build strengths

- Environmental action focused on climate change
- Provide increased value through environmental actions delivered through our business activities
 - Reduce environmental burden and mitigate risks across the entire supply chain

Create value (economic and social value)

- Reduce environmental burden and mitigate risks for customers and society
(= Contribute to sales)
- Cut costs and improve assessments by reducing environmental burden and mitigating risks at our company



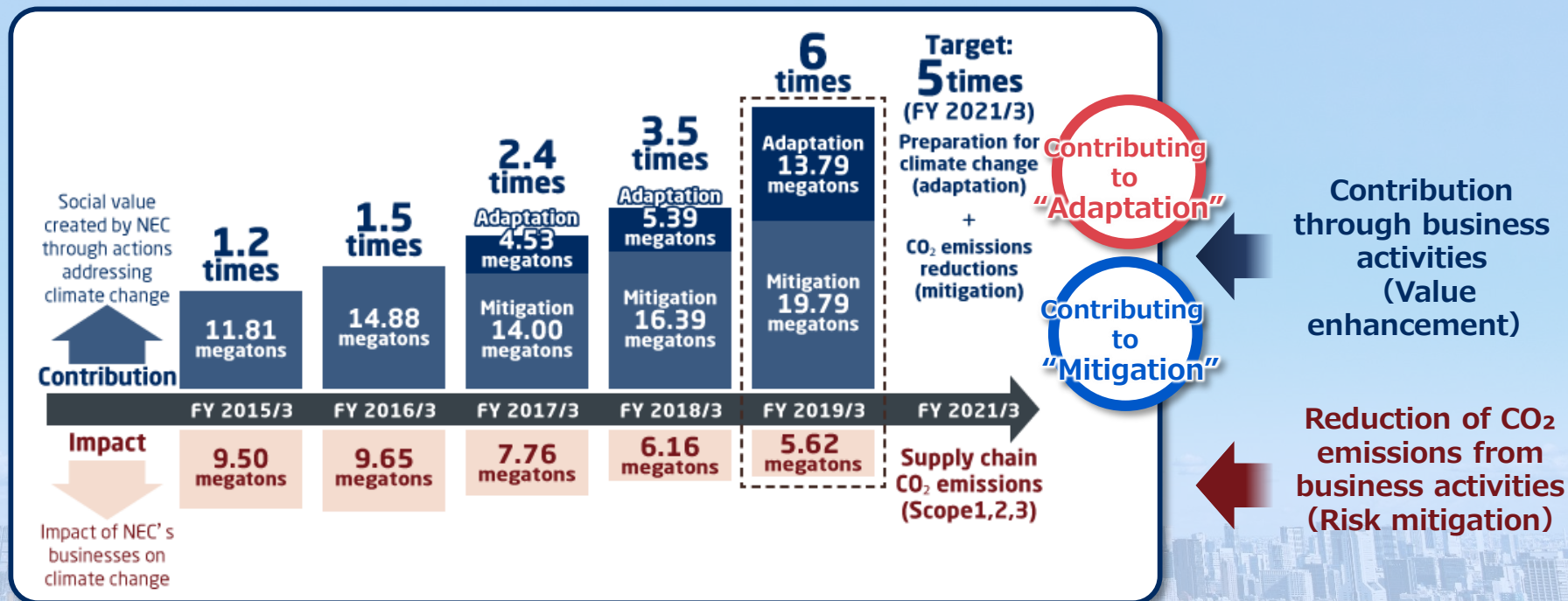
Target and progress of "NEC Group Environmental Management Action Plan 2020/2030"

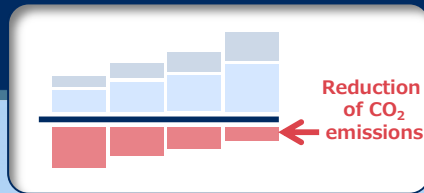
Steady progress is being made towards 2020 targets

| | | Results in FY2019 | Targets in FY2021 | Targets in FY2031 |
|--|--|-------------------|---|-------------------|
| 1. Contribution to "mitigation" of climate change | ① Reduce CO ₂ emissions of society as a whole through provision of IT solutions. | 19.79 megatons | 23 megatons | 50 megatons |
| | ② Improve the product energy efficiency. (compared with products in FY2014) | 74% improvement | 30% improvement | 80% improvement |
| 2. Contribution to "adaptation" to climate change | ③ Prepare for the impacts of climate change through the provision of solutions for society. | 13.79 megatons | Enhance competitiveness of solutions for resolving issues and increase contributions through business | |
| 3. Reduction of emissions from business activities | ④ Reduce CO ₂ emissions per unit through improved efficiency. (compared results with FY 2013) | 15.7% improvement | 18% improvement | 30% improvement |
| | ⑤ Convert to renewable energy (compared results with FY 2012) | 9.7times | 10times | — |

Climate change measures target for 2020

We aim to **create value** through our business activities **by attaining a level of CO₂ emissions reductions that is five times** the total volume of CO₂ emissions from our entire supply chain in FY2021.





● Scope 1+2

Reduce GHG emissions
by FY2031

33% reduction from FY2018

● Scope 3

Reduce GHG emissions
from the use of sold products
by FY2031

34% reduction from FY2018

[Target Classification]

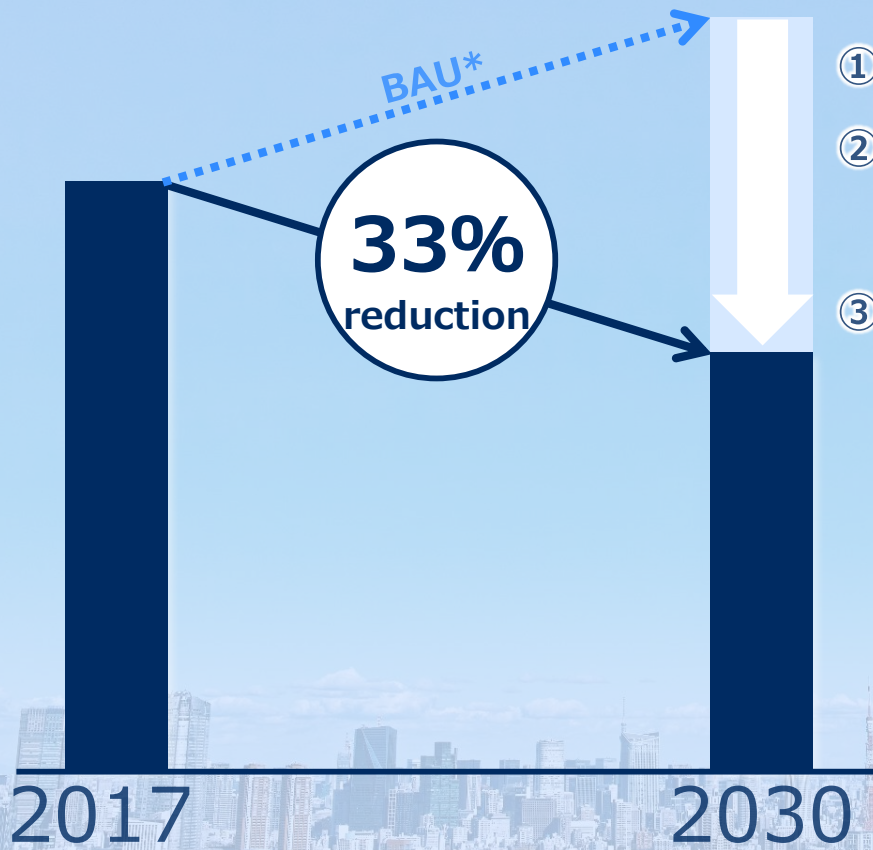
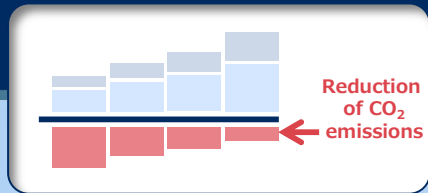
Well-below 2°C



SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

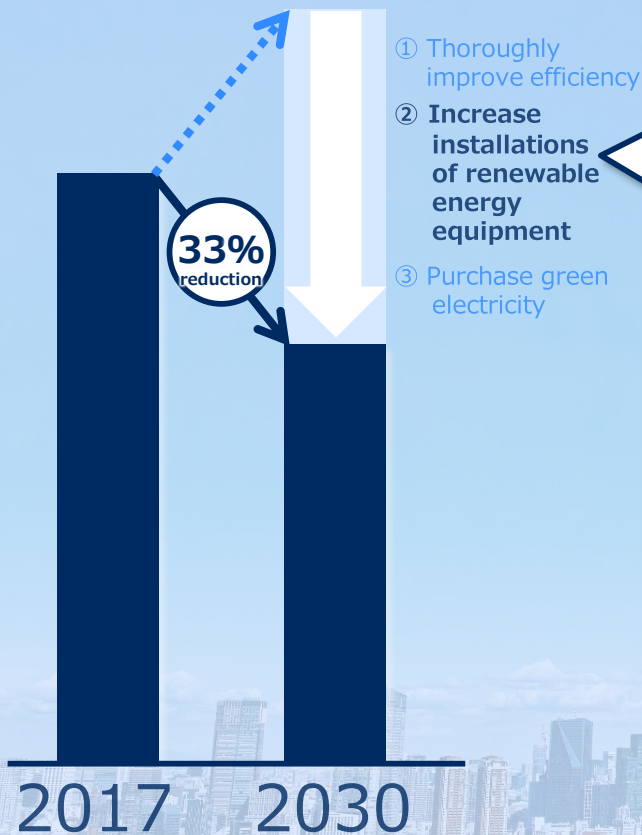
Initiatives aimed at achieving SBTs (Scope 1 + 2)



- ① Thoroughly improve efficiency
- ② Increase installations of renewable energy equipment
- ③ Purchase green electricity

※ BAU : Business as usual (to take no reduction measures)

Initiatives aimed at achieving SBTs (Scope 1+2)



Solar panels will be installed on the rooftops of all NEC Group buildings where it is possible to do so

Progress of major installations after FY2019

● Overseas: NEC Platforms Thai Company Limited

(Thailand)

- NEC Platforms Thai
- 1.4 MW solar power plant
- Started operation in September 2019



● Japan: Plants and Group companies

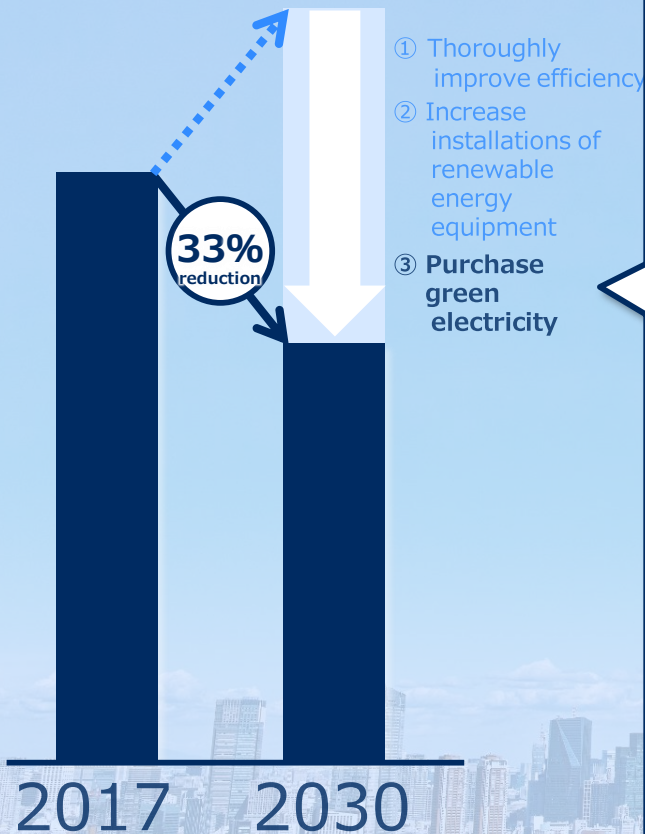
- NEC Platforms Kofu Plant
- 1.0 MW solar power plant
- Scheduled to start operation in FY2021

- NEC Sagamihara Plant
- 0.3 MW solar power plant
- Scheduled to start operation in FY2021

- NEC Abiko Plant
- 1.2 MW solar power plant
- Scheduled to start operation at the end of FY2020

- From 1 MW and up (1MW=power for about 400 households)
- From 10 kW and up

Initiatives aimed at achieving SBTs (Scope 1 + 2)



Promoting systematic program for the purchase of green electricity

(Expanding program starting with purchase of green electricity overseas where the price is affordable, and moving on to metropolitan areas and data centers in Japan where power consumption is high)

Usage of green electricity

- Overseas: two companies have switched completely to green electricity
- Japan: Plants in the NEC Keihin area and Kobe Data Center began using green energy from FY2020

NEC Corporation of America



NEC Scandinavia AB

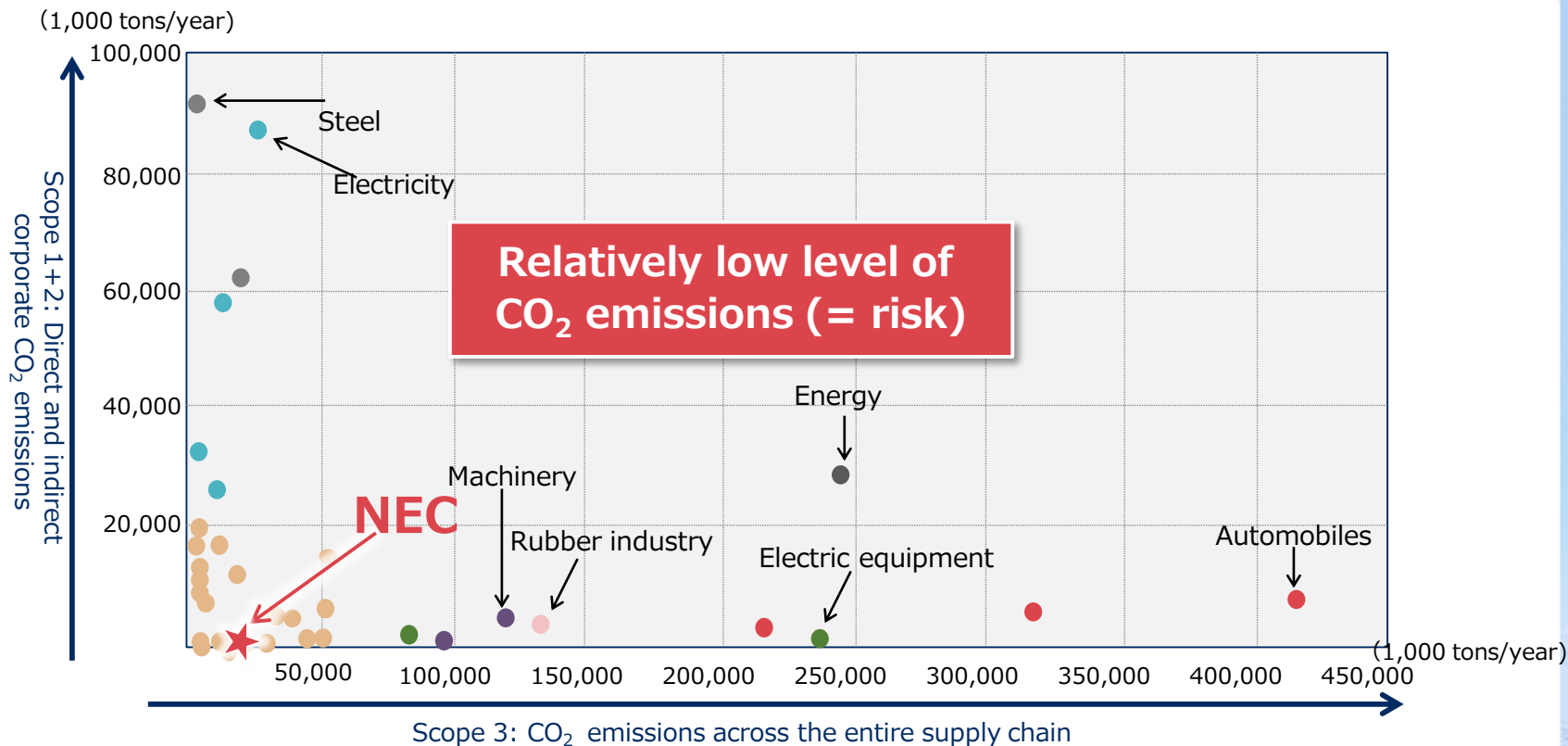


Plants in the Keihin area



Kobe Data Center

NEC's position in the mapping of corporate CO₂ emissions



This graph was created by ©Green Pacific Co., Ltd. and partly modified by NEC. Unauthorized reproduction is prohibited.

Viewing climate change mitigation as an “opportunity”

Declared support for TCFD recommendations (July 2018). Evaluating risks and opportunities from a short/mid- and long-term perspective*

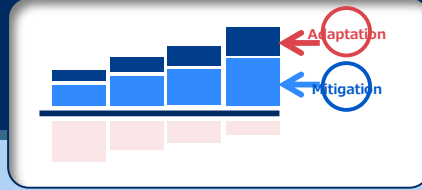
* Source: SSP1 (2°C) and SSP3 (4°C) of the socio-economic scenario (SSP; Shared Socioeconomic Pathways). Envisioning the social scenario in 2050.

Recognized the importance of focusing on opportunities

| Risks | Description | Countermeasures |
|-------------------------|--|--|
| Transition risks | Impact of carbon pricing on profits (2020: \$40 to \$80/t CO ₂ , 2030: \$50 to \$100/t CO ₂) | Thoroughly improve efficiency and increase the use of renewable energy to achieve SBTs (2030) and the goal of reducing CO ₂ emissions to zero (2050) |
| Physical risks | Severed supply chains and long-term stoppage of electricity, gas, water and other lifelines due to weather disasters (floods, landslides, water scarcity, etc.) | Conduct risk assessment of entire supply chain and establish a business continuity plan (BCP) that also takes weather disasters into consideration strengthen power generation facilities at data centers |

| Opportunities | Description | Existing assets |
|--|--|---|
| Providing value through measures to reduce transition risks | Develop transportation infrastructure with low CO ₂ emissions | Logistics Route Optimization, Logistics Visualization, ITS, BRT, etc. |
| | Expand usage of renewable energy | xEMS, Power Demand Prediction, Storage battery and storage battery system, Virtual Power Plant (VPP), etc. |
| | Reduce energy loss | Process reform (operation, development, production, logistics), Smart Factory, business automation, Supply and Demand Optimization Platform, etc. |
| Providing value through measures to reduce physical risks | Increase in floods | Flood/overflow simulation, evacuation measures solutions, etc. |
| | Increase in forest fires | Forest Fire Detection, etc. |
| | Changes in suitable arable land | Predicted impact simulation, Agriculture Learning Service, Farm Guidance Support System, etc. |
| | Spread of infectious diseases | Pandemic countermeasures using infrared cameras, logistics information management platform to deal with onset of global infections, etc. |

Our approach to using ICT to contribute to climate change mitigation



From the perspective of climate change

<Main source of emissions>

- Energy (generation, heat production)
- Transportation
- Manufacturing
- Construction
- Offices
- Agriculture, forestry, land use
- Day-to-day life
- Commercial activities
- Waste disposal

<Main impact>

- Weather disaster (rising sea levels, storm surges, floods, landslides)
- Infrastructure function stoppage
- Damage to health (heatstroke, infectious diseases)
- Water shortage
- Crop decline/Food shortage
- Loss of ecosystems and biodiversity

Mitigation

Reduce greenhouse gas emissions

Adaptation

Prepare for impacts of climate change

ICT

Visualization

Analysis

Prescription

NEC the WISE

Provided value

Reduce energy consumption (Reduce CO₂ emissions)

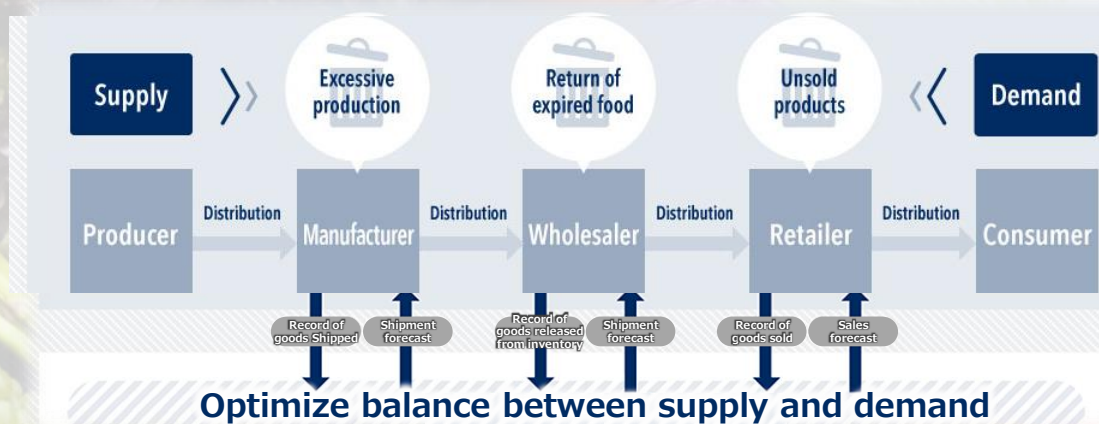
- Reduce energy loss
- Increase efficiency and productivity
- Improve the capacity operation rate
- Improve transportation efficiency
- Eliminate transport of things/movement of people
- Reduce waste

Prepare for impacts

- Disaster predictions and preparing in advance
- Surveillance and monitoring
- Notifications and evacuation guidance
- Predict crop yield, improve productivity, improve crop species
- Recovery measures

[Use Case] Supply and Demand Optimization Platform

Contributing
to
"Mitigation"



Recognize social issues

- Food loss
Global: ≈1.3B tons/year
Japan:≈6.43M tons/year
- A large amount of energy is used to dispose of food

Build strengths

- Collect data across the entire value chain from production to retail
- AI-based demand prediction using Heterogeneous Mixture Learning

Create value (economic and social value)

- Optimize inventory placement, production, and order planning to contribute to the improvement of revenue growth as well as the reduction of food loss
- Reduce energy loss



[Use Case] Forest Fire Monitoring and Management System (Indonesia)

Contributing
to
"Adaptation"



Recognize social issues

- Forest fires are adversely impacting agriculture, health, transportation, and tourism
- The increase of CO₂ emissions due to forest fires and deterioration of the ecosystem caused by the depletion of forests

Build strengths

- Monitor wide areas to rapidly detect the outbreak of fires
- Share information on tablets to support effective and efficient firefighting efforts

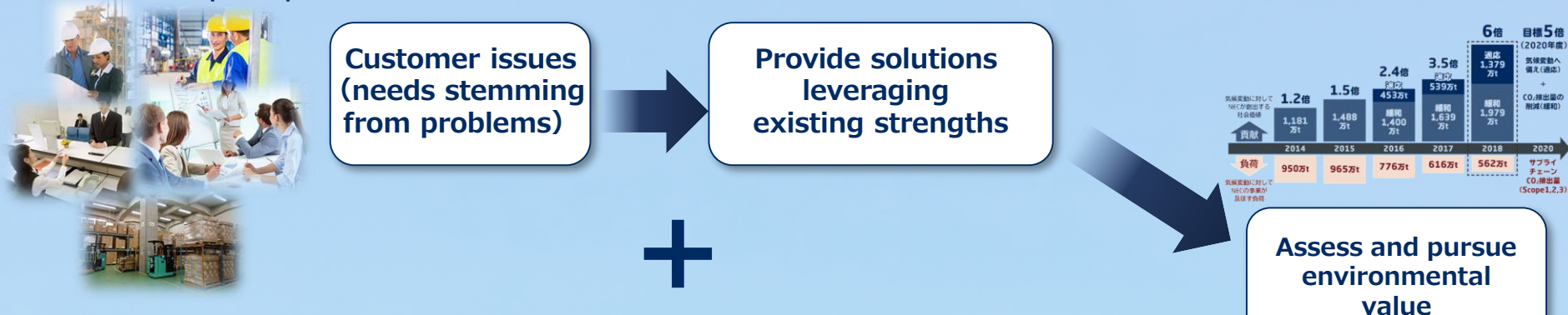
Create value (economic and social value)

- Contribute to tourism and the local economy
- Reduce impact on health
- Reduce CO₂ emissions
- Conserve forests and ecosystems



Incorporate climate change Measures into NEC's growth strategy

Assess and pursue the creation of value through business activities from the perspective of the environment



Promote business growth by linking strengths created through focus on environmental issues



Analysis of risks and opportunities based on TCFD recommendations



The process of creating value through consideration of environmental issues



Achieve sustainable growth by promoting business creation that focuses on environmental issues



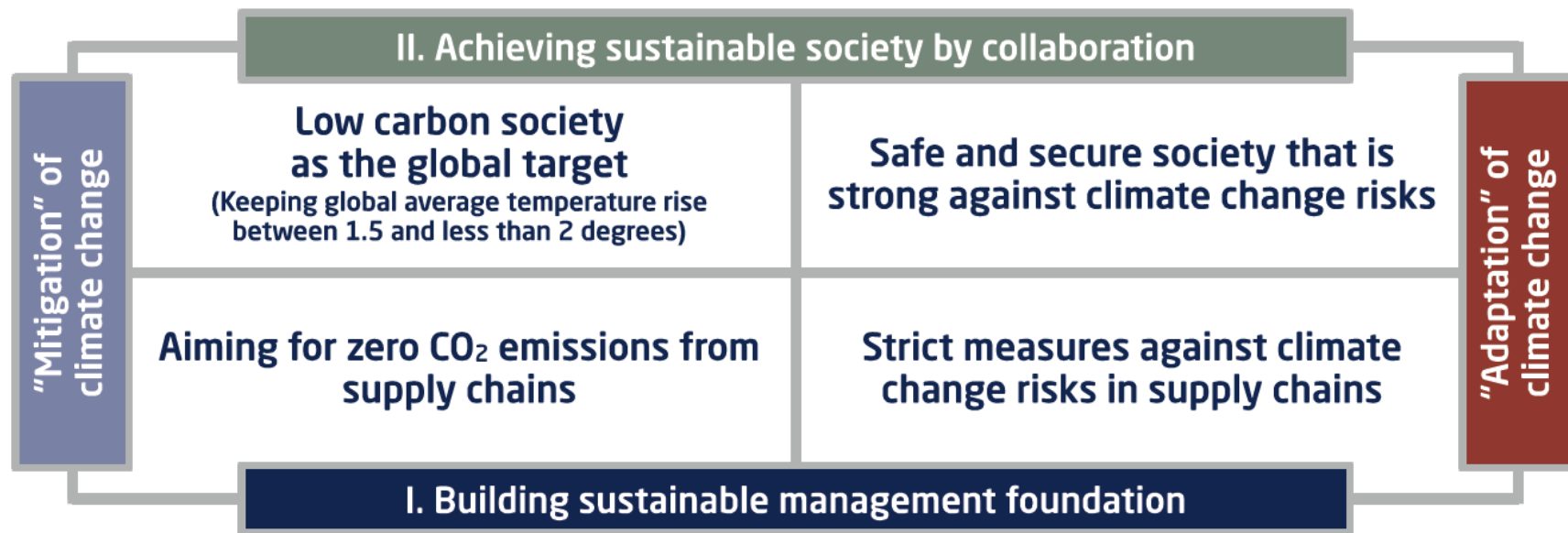
Orchestrating a brighter world

NEC brings together and integrates technology and expertise to create the ICT-enabled society of tomorrow.

We collaborate closely with partners and customers around the world, orchestrating each project to ensure all its parts are fine-tuned to local needs.

Every day, our innovative solutions for society contribute to greater safety, security, efficiency and equality, and enable people to live brighter lives.

- We aim to build a sustainable management foundation and co-create a sustainable society with customers from the perspective of climate change “mitigation” and “adaptation.”



CO₂ emission from NEC's commercial activities※ to
“substantially zero” in 2050

※ Scope 1+2

<Ref.> CO₂ emissions from the entire supply chain (Scope 1, 2, 3)

Scope 1

Standards for calculating and reporting greenhouse gases directly emitted from an organization's facilities or factories

Scope 2

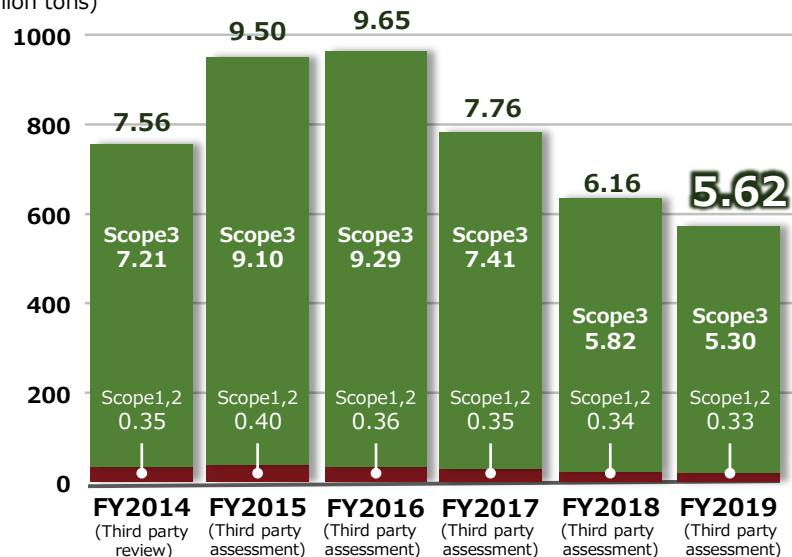
Standards for calculating and reporting indirect emission from an organization through purchased energy

Scope 3

Standards for calculating and reporting greenhouse gases emitted from all the organizations in a group (supply chain) for a particular product or service

Yearly emission history

(Million tons)



Emissions from other categories excluding categories 8, 13, 14

12%

Scope 1 ; 1%

Scope 2 ; 5%

Category 1

Emissions from purchased goods & services

8%

74%

Category 11

Emissions from use of sold products

5.62 megatons

Scope 3
94%