

Green x Digital

-Opportunities for EU-Japan Industrial Cooperation-

NEC's Efforts to Achieve Carbon Neutrality and Green x Digital Consortium Data Visualization Project

NEC

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An age in which businesses are required to commit to environmental targets and disclose information

Low-carbon society that the world aims to achieve

Keep the average temperature rise below 1.5°C to 2°C from pre-industrial levels by 2050

Commitment to environmental targets

Reduction requested by customers /
Reduction requests incorporated in procurement requirements



RE 100

BUSINESS AMBITION FOR 1.5°C

Disclosure of environment-related information

Disclosure of environment-related information demanded by the financial sector and EU



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Purpose

\Orchestrating a brighter world

NEC creates the social values of safety, security, fairness and efficiency to promote a more sustainable world where everyone has the chance to reach their full potential.

NEC 2030VISION

Environment

Living harmoniously with the earth to secure the future

Society

Nurturing prosperous cities with inclusive and harmonious societies
Creating sustainable societies by shaping new industries and workstyles
Sharing hopes that transcend time, space, and generational boundaries

Life

Bringing people together and filling each day with inspiration



**Carbon neutrality of
NEC and its supply chain**

**Carbon neutrality of
customers and society**

New commitments for FY2021

Recertified in
May 2021



NEC increased the stringency from the “well below 2°C” level to the “1.5°C” level.

Joined in
May 2021



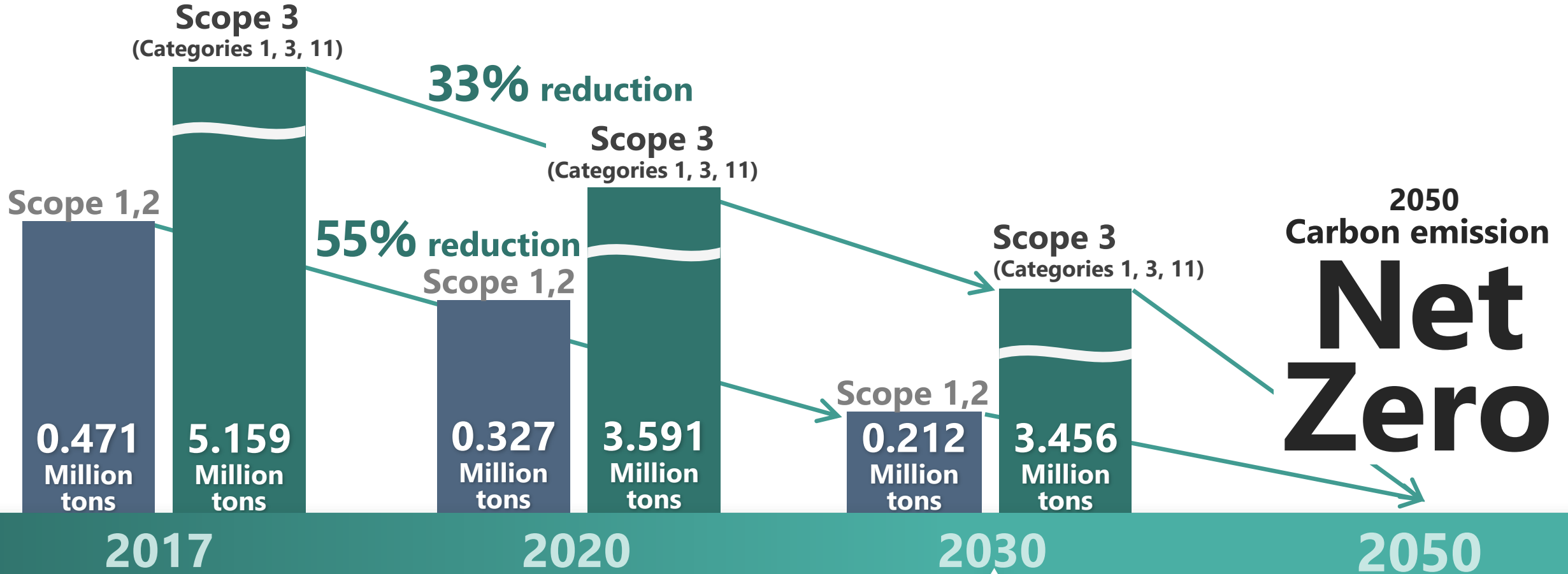
NEC is committed to 100% conversion to renewable energy by 2050 at all our operations in Japan and overseas.

Signed in
October 2021




NEC is committed to reducing the GHG emissions to net zero across the entire supply chain.

Milestones



SBT1.5°C
certification



SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

— Scopes 1 and 2 : Introducing more renewable energy facilities

Introduce solar power generation at domestic plants by FY2023

● : 1 MW or more
■ : 10 kW or more
1 MW is equivalent to power for approx. 400 households

Japan

NECPF Nasu Plant

0.3-MW solar power plant planned to be put into operation in FY 2021

NEC Fuchu Plant

1.0-MW solar power plant planned to be introduced in FY 2023

NECPF Otsuki Plant

0.5-MW solar power plant planned to be introduced in FY 2023

NECPF Kofu Plant

1.2-MW solar power plant put into operation in August 2021

NECPF Kakegawa Plant

0.7-MW solar power plant planned to be introduced in FY 2022

0.3-MW solar power plant planned to be introduced in FY 2023

NEC Sagamihara Plant

0.4-MW solar power plant planned to be introduced in FY2023

NEC Abiko Plant

Total ⇒ 4.1MW

1.2-MW solar power plant put into operation in FY 2019

0.3-MW solar power plant put into operation in FY 2020

1.8-MW solar power plant planned to be put into operation in FY 2021

0.8-MW solar power plant planned to be introduced in FY 2022



Solar panels installed at the Abiko Plant

Overseas

NECPF Thailand

1.4-MW solar power plant put into operation in Sept. 2019



* NECPF = NEC Platforms

— Scopes 1 and 2 : Purchasing green electricity

Use 100% renewable energy at the head office building and NEC Cloud IaaS data centers from FY 2022

Head office building



NEC Cloud IaaS data centers



NEC Kanagawa Data Center



NEC Kobe Data Center

Scope 3 : Efforts to reduce CO₂ emissions from the supply chain



Scope 3

Category 1: Purchased products and services

Boost engagement to encourage suppliers to reduce CO₂ emissions

Scope 3

Category 11: Use of sold products

Rate of energy efficiency improvement from FY 2013 levels aim to achieve 90% in FY 2025

Supplier engagement

- Developed "Guidelines for Responsible Business Conduct in Supply Chains " in July 2020. Obtained agreements from approx. 10,000 suppliers, which account for 80% of the total purchase amount, by the end of December 2021.
- Conducted a survey on approx. 1,000 main suppliers to understand their GHG emissions, targets, and reduction initiatives. Requested SBT-equivalent GHG reductions by 2030 and the realization of carbon neutrality by 2050. Shared NEC's know-hows on GHG reductions.

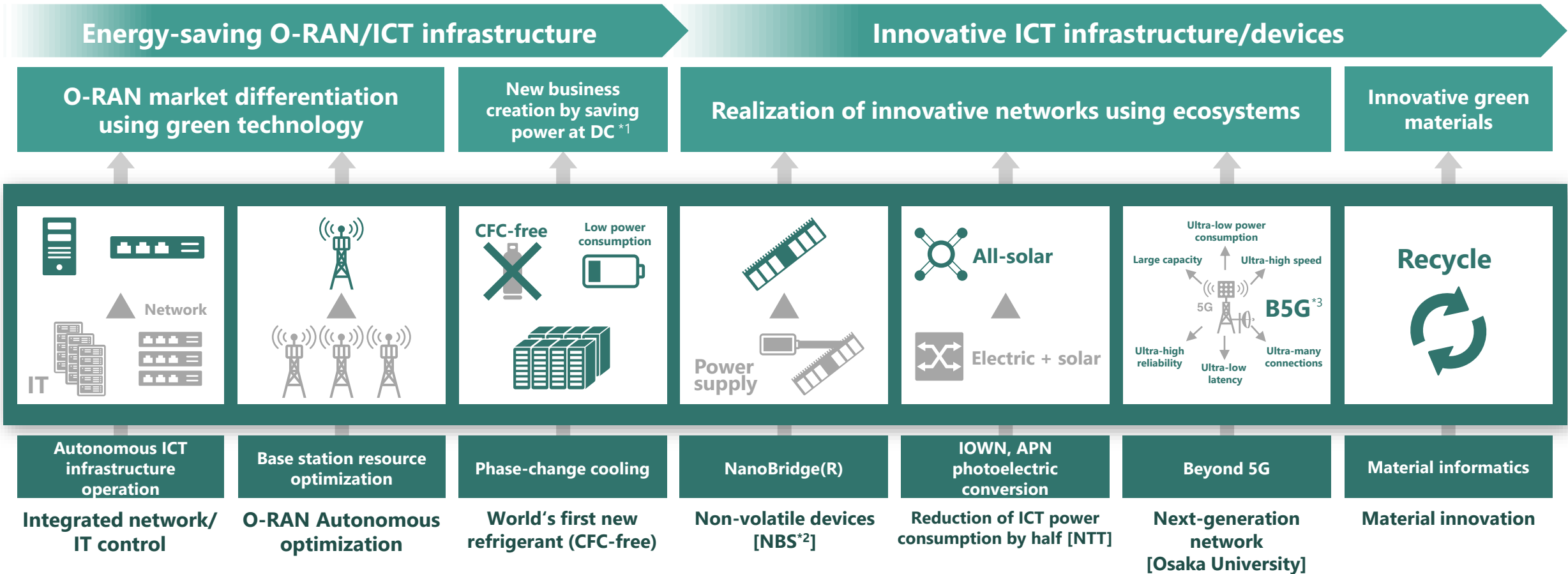
Common issues to all Companies

- ✓ Efforts to reduce carbon emissions by respective companies belong to individual supply chains are not reflected in the results of Scope 3 calculations.
- ✓ Now we have set up a consortium (which will be described later) and are considering countermeasures.

Green

x Digital Consortium

Realize innovative green ICT infrastructure



*1 Data center / *2 NanoBridge Semiconductor, Inc. / *3 Beyond 5G

Awarded top rating from external evaluator

NEC has received an A List rating three consecutive years in a row in the global environmental disclosure system run by the CDP.

2019



2020



2021





Green x Digital Consortium

Utilizing digital technology and solutions to achieve carbon neutrality across society

Overview of the **Green** x **Digital** Consortium

Green is the key to

- tackling climate change
- corporate strategies to enhance competitiveness

Digitalization is the key to

- sustainable economic growth
- achieving the Sustainable Development Goals and carbon neutrality

Green x **Digital**

- provides digital technologies to achieve carbon neutrality
- creates new solutions to achieve green social transformation

Green x **Digital** Consortium

◆ Activity

- I . Promote dialogue and cooperation for decarbonization
- II . Produce a vision for a carbon neutral society
- III . Propose solutions leading to industrial and social transformation

◆ Cooperation

- I . Cross industrial approach
- II . Public-private cooperation
- III . Global collaboration

Our members: 103 companies



Green x Digital Consortium

✓ More than 100 companies from various industries participate in the consortium.

As of March 18, 2022

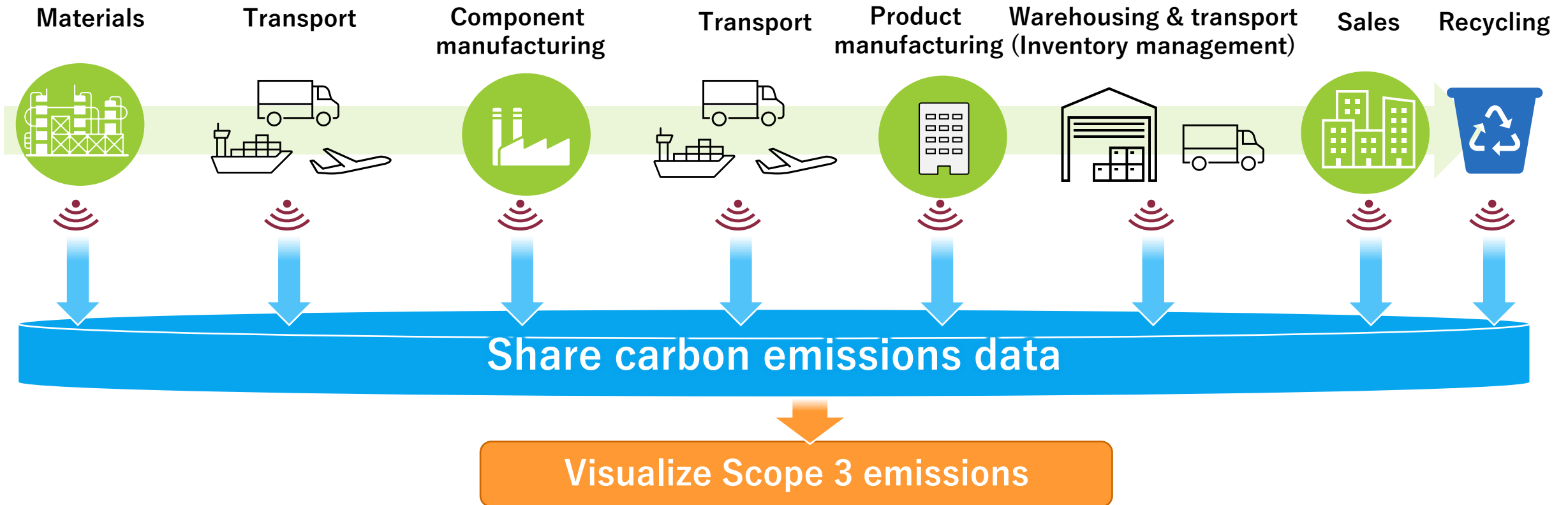
- ABeam Consulting
- Apple Japan
- boost technologies
- CHIYODA
- FORVAL
- FUTURE
- Internet Initiative Japan
- Japan Radio
- KAJIMA
- MITSUBISHI ESTATE
- Murata Manufacturing
- NIPPON EXPRESS holdings
- NTT FACILITIES
- Panasonic
- RICOH
- SATO
- SHARP
- Sony Group
- TDK
- TOKYU
- Whole Energy
- after FIT
- Asahi Kasei
- BROTHER INDUSTRIES
- Chubu Electric Power Miraiz
- Fuji Electric
- HITACHI
- IPCORE Laboratory
- Japan Renewable Energy
- Kansai Electric Power Company
- NIPPON ANTENNA
- NAGASE
- Nippon Information and Communication
- Oki Electric Industry
- Panasonic Environmental Systems & Engineering
- Ridgelinez
- SBI R3 Japan
- Shimizu
- SUMIRON
- THine Electronics
- TOSHIBA
- Yokogawa Electric
- AISIN
- AZUSA INSTITUTE OF RESEARCH
- Canon
- DAIKIN INDUSTRIES
- FUJIFILM Business Innovation
- Hitachi Solutions
- ITOCHU ENEX
- JSOL
- KOCHI Japan
- MITSUI
- NEC
- Nitto Denko
- ondo
- PERSOLPROCESS & TECHNOLOGY
- ROHM
- SCSK
- SHINNIHONKIKAKU
- Sumitomo Mitsui Banking
- Tokio Marine & Nichido Fire Insurance
- TOYOBO
- zeroboard
- Amazon Web Services Japan
- Azusa Sekkei
- CCS
- Dec arbonization Support
- FUJIFILM Holdings
- Honda Motor
- ITOCHU Techno-Solutions
- JTB: Japan Travel Bureau
- Microsoft Japan
- MITSUI-SOKO HOLDINGS
- Nihon Dempa Kogyo
- Nomura Research Institute
- Oracle Japan
- PwC Advisory
- RSI
- SECOM
- Sim Yamajio
- TAKENAKA
- Tokuyama
- TOYOTA TSUSHO
- ANA: All Nippon Airways
- Baker & McKenzie
- chaintope
- DENSO
- FUJITSU
- IBM Japan
- Japan Airlines
- KACOMS
- MITSUBISHI ELECTRIC
- Mizuho Research & Technologies
- Nihon Unisys
- NTT DATA
- Pacifico Energy
- PwC Consulting
- Ryonetsu Kogyou
- SEIKO EPSON
- Small Impact
- TANAKA Holdings
- TOKYO OHKA KOGYO
- ViSCO Technologies

Struggles against reducing carbon emissions across the supply chain

- ✓ **Companies need to gauge and reduce carbon emissions across the entire supply chain** in both their business dealings and capital procurement.
- ✓ Most companies can gauge and reduce Scope 1+2 emissions in the supply chain and have been working to do so for many years.
The key to reducing carbon emissions in the supply chain is now Scope 3.
- ✓ Calculating Scope 3 Category 1 (Purchased goods and services) and category 4 (Upstream transportation and distribution) requires corporate data from other companies, so most companies estimate these figures using secondary data from databases.
As a result, efforts to reduce carbon emissions by respective companies belong to individual supply chains are not reflected in the results of Scope 3 calculations.
- ✓ To reduce Scope 3 emissions, therefore, **companies within the same supply chain need to share primary data so as to make a more accurate assessment of carbon emissions in the supply chain.**

Project aims

- ✓ Utilize digital solutions to visualize carbon emissions across supply chains to accurately gauge Scope 3 emissions
- ✓ Facilitate engagement between companies to reduce carbon emissions





1st step: Study phase (Nov. 2021-March 2022)

Identify items for investigation

- Consider long-term goals
- Conduct a study on companies' current CO₂ emissions management status
- Conduct a study on similar activities around the globe

2nd step: Investigation phase (April-August 2022)

Develop guidelines for data utilization

- Data type/calculation method
 - ✓ Data type (Corporate level? Product level?)
 - ✓ Calculation method (Scope1+2? CFP?), etc.
- Data sharing methods
 - ✓ Scope of disclosure
 - ✓ Interconnectivity between different systems, etc.
- Appropriate technologies

Collaborate with similar initiatives elsewhere in the world

3rd step: Test phase (July 2022-March 2023)

Conduct a proof-of-concept experiment using a pilot model

- Recruit companies (companies supplying and using systems)
- Conduct a POC experiment
- Examine results

- **Global collaboration is a key for our activity.**
- **Achieving visualization of CO₂ emissions across supply chains requires the cooperation of all companies around the world.**
- **Green x Digital Consortium hopes to connect with the global communities.**

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