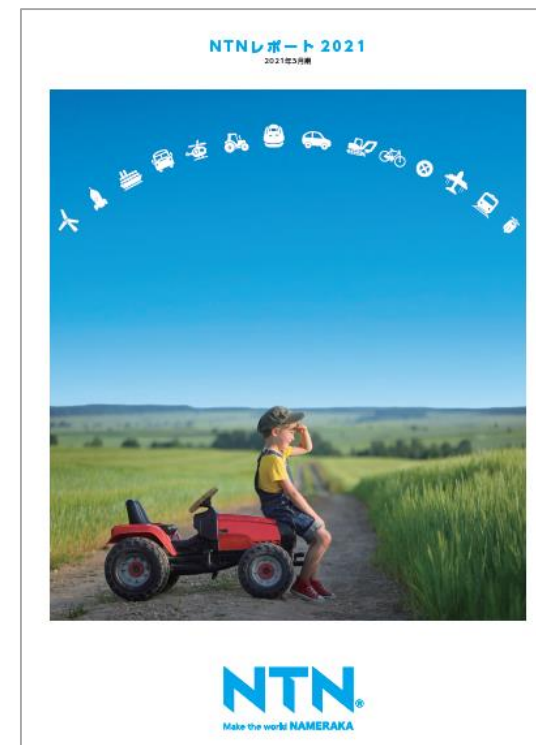


NTN CORPORATION ESG Meeting

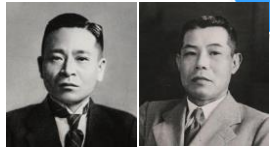
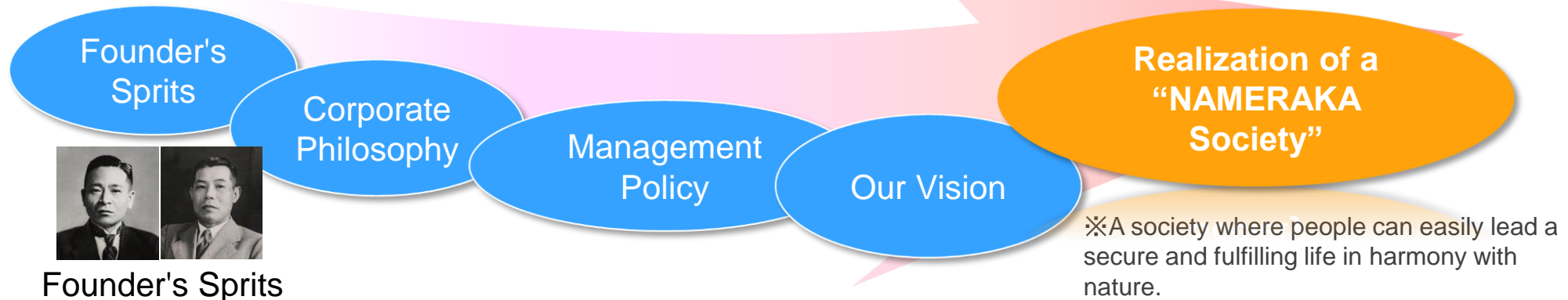


December 21, 2021
NTN CORPORATION

- 1.NTN Group Vision and Roadmap
- 2.Contribution to a Carbon-free Society through Products
- 3.R&D Supporting ESG Management
- 4.TCFD Scenario Analysis and Realizing Carbon Neutrality
- 5.ESG Management Promotion System

NTN Group Vision

Through the implementation of our corporate philosophy, **“We shall contribute to international society through creating new technologies and developing new products,”** we aim to contribute to solving social issues surrounding the world and realize a **“NAMERAKA Society”**, a society where people can easily lead a secure and fulfilling life in harmony with nature.



Founder's Sprits

The Frontier Spirit

The Coexistence and Co-prosperity Sprits



Corporate Philosophy:

We shall contribute to international society (Frontier Spirit)

through creating new technologies and developing new products

(Coexistence and Co-prosperity Sprits)

Toward the Realization of a “NAMERAKA Society”

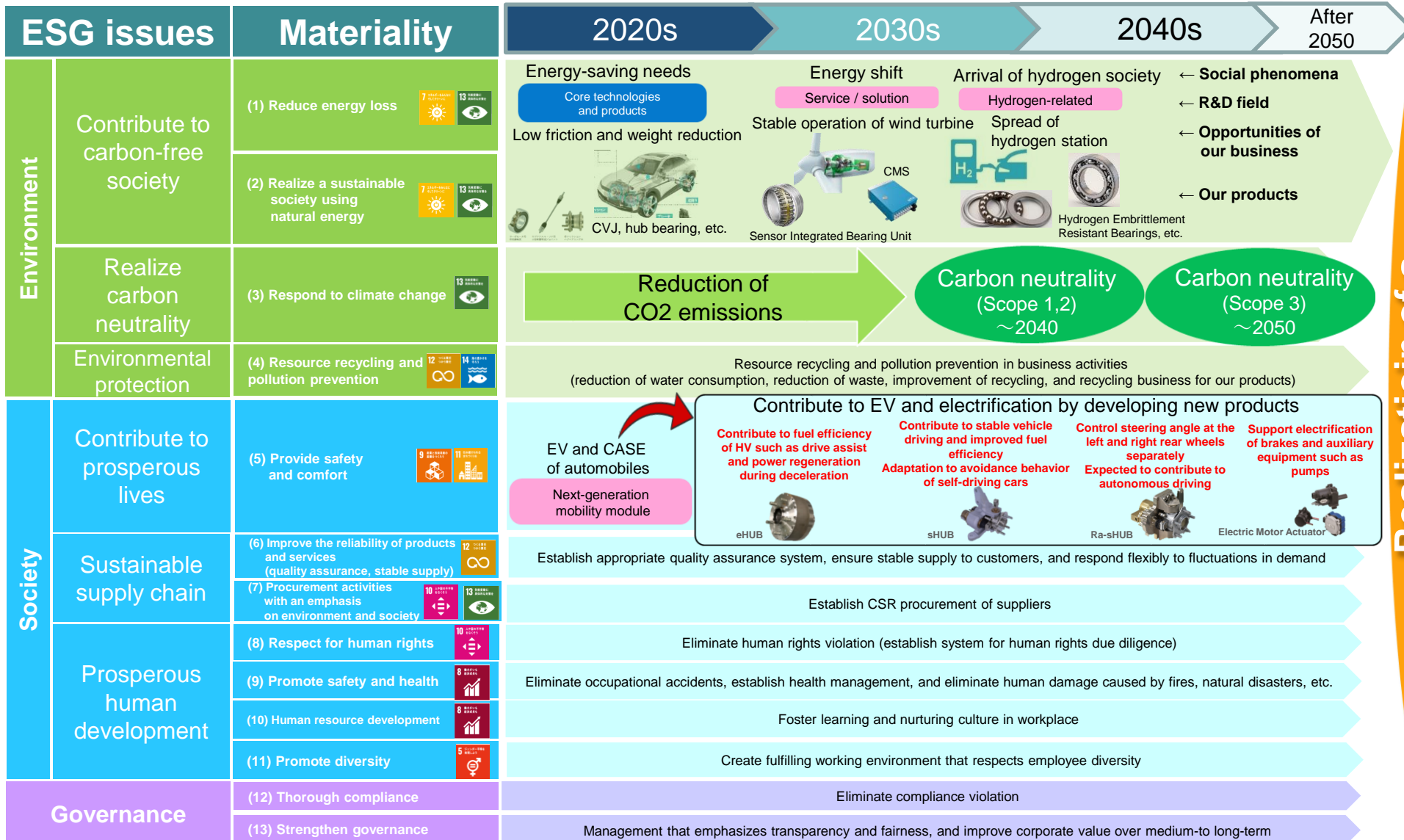
Identify materiality responding to SDGs

Promote ESG Management



Roadmap for Realization of a “NAMERAKA Society”

- ◆ Roadmap: A medium-to long-term plan that shows our purpose of being for ESG issues
- ◆ Solving social issues by integrating Backcasting (future-oriented) and Forecasting (present-oriented)



Realization of a “NAMERAKA Society”

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Contribution to Carbon-free Society through Products

Contribute
to carbon-
free society



Demonstrate NTN's strengths in the field of electric vehicles (EV) and renewable energy, which are becoming increasingly popular

EV



Core products



Bearings



Driveshaft



Hub bearing

New areas



Electric Motor
Actuator



eHUB



sHUB



Ra-sHUB



Contributing to carbon neutrality, safety and comfort in the automotive society

Wind power



Bearing for main shaft



Condition monitoring system
(CMS)



Contributing to stable operation of wind turbine

Contribute to energy saving in automobiles by low friction and lightweight

Core products

 World's No.2
market share

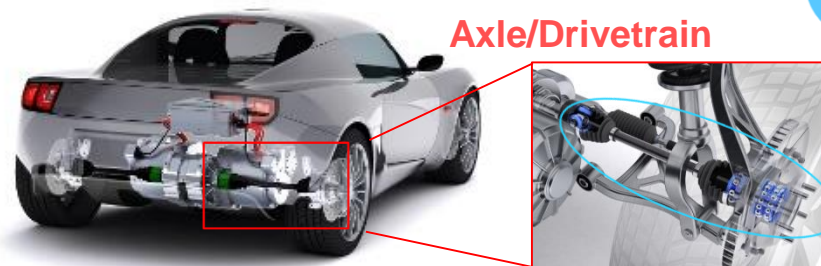

Driveshaft (CVJ)

that transmits a driving power

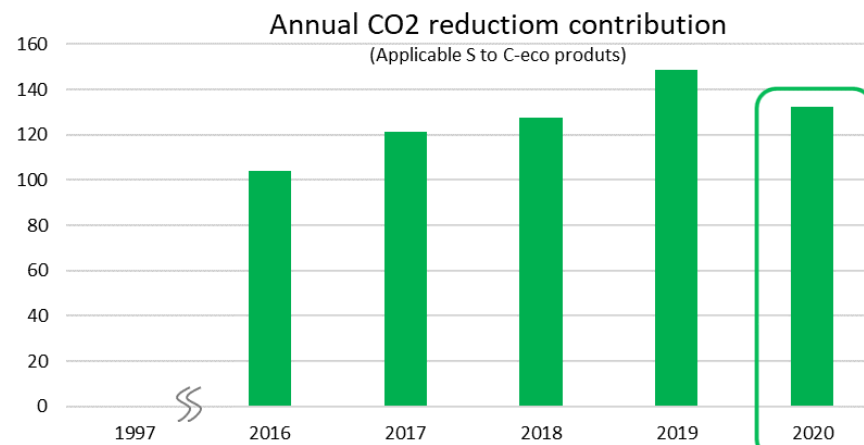
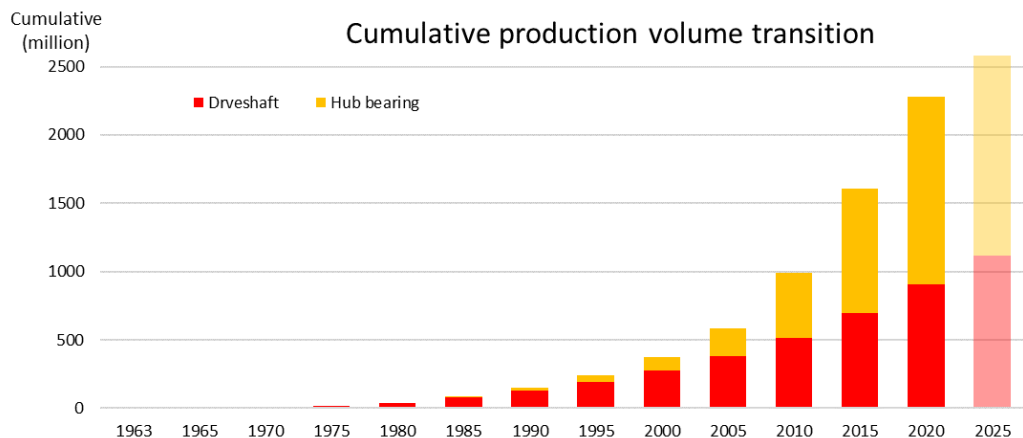
 World's No.1
market share


Hub bearing

that Support the wheels



Axle/Drivetrain



Demonstrate NTN's competitive advantage (technology)



CFJ

 50% reduction in torque loss
(compared to conventional product EBJ)


Low-friction HUB III

 62% reduction in rotational friction
(compared to 2009)

Contribute to reducing CO₂ emissions by
1.32 million tons* annually through
environment-contributing product
(Results for FY2020, *compared to FY1997)

Contribute to the spread of EVs by enhancing the functionality of core products

Impact on our business of the shift to EVs

Core products

Increased average sales price per car and improved profitability through higher functionality

- Bearing: Demand for engine and transmission bearings disappears, and high-performance motor bearings are added.
- Hub bearing: No change in the number of units used (4 units), high functionality (low friction, light weight, high speed)
- Driveshaft: Higher functionality (lower torque loss, light weight, high rigidity, low vibration), upsizing, and shifting to AWD (increase in the number of units used)

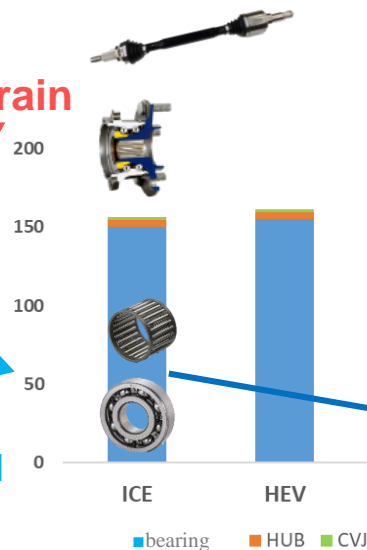
Demand for bearings and CVJs per car (NTN study)

Higher functionality than ICE (increased added value)

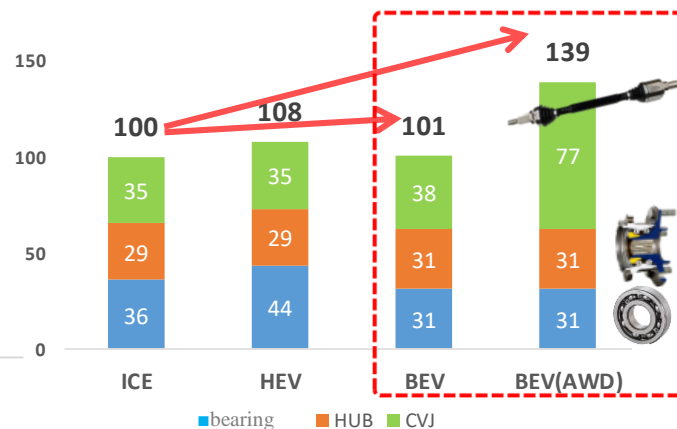
CVJ and HUB used in axle/drivetrain

Number of units used

Total number of bearings decreased to 2/3 due to the shift to EVs



Unit price per car (Demand amount indexed ※)



※Assuming total demand for ICE is 100

BEV: 5%UP for HUB selling price and 10%UP for CVJ selling price

BEV(AWD): Using 4 pieces of CVJs

Get demand with high-performance products

The shift to EVs is a sustainable growth opportunity

Accelerate the development of high-performance products utilizing core technology
Propose next-generation mobility modules for EVs and CASE

New areas



Electric Motor Actuator

Technologies for bearings
and ball screws
+
Motor design technology
Electronic control technology

**Support electrification of
brakes and auxiliary
equipment such as pumps**



eHUB

Hub bearing
+
Motor Generator

**Contribute to fuel efficiency of
HV such as drive assist and
power regeneration during
deceleration**



sHUB

Hub bearing
+
Steering assist function

**Contribute to stable vehicle
driving and improved fuel
efficiency**
**Adaptation to avoidance
behavior of self-driving cars**



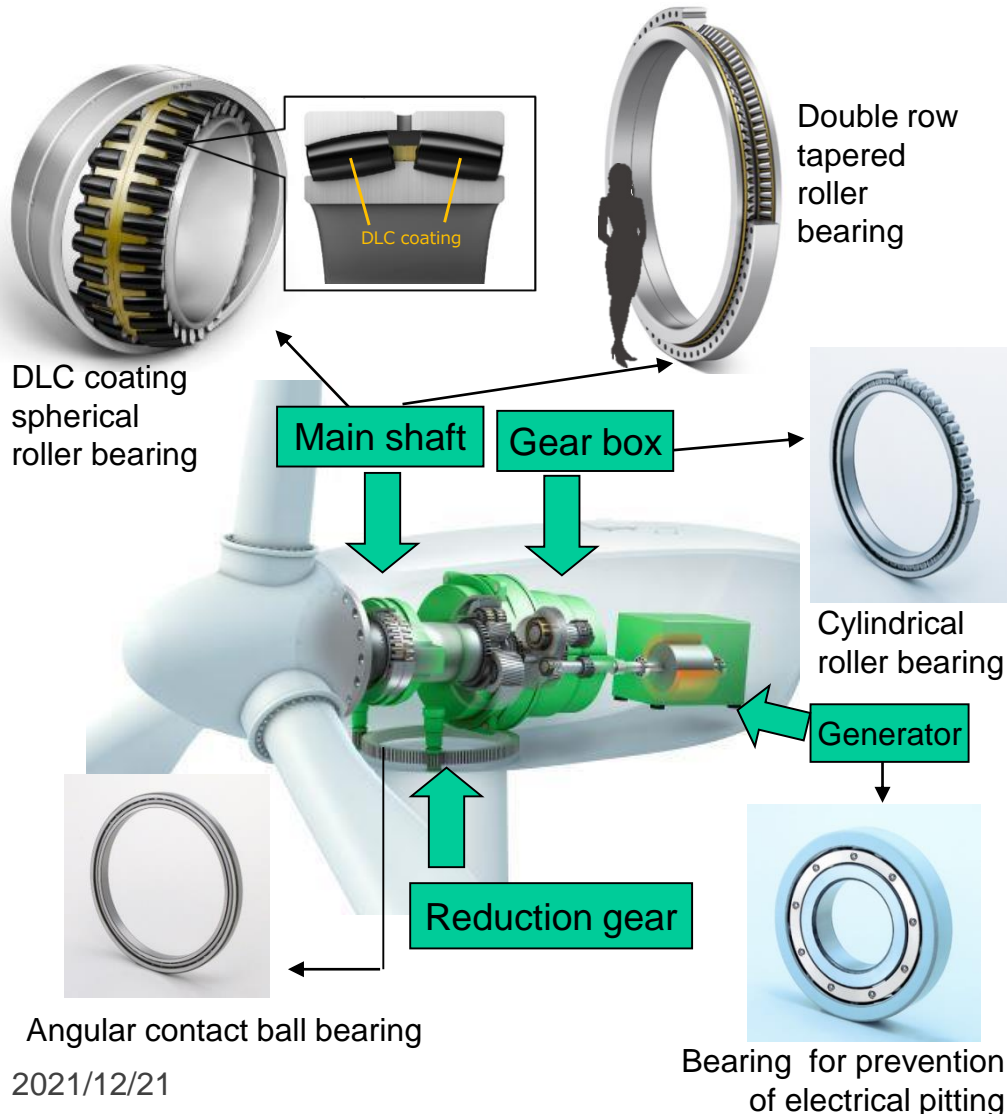
Ra-sHUB

Hub bearing
+
Motor control technology
(for rear wheels of front-wheel-drive
vehicles)

**Control steering angle at the
left and right rear wheels
separately**
**Expected to contribute to
autonomous driving**

Renewable Energy: Expand Business for Wind Turbine

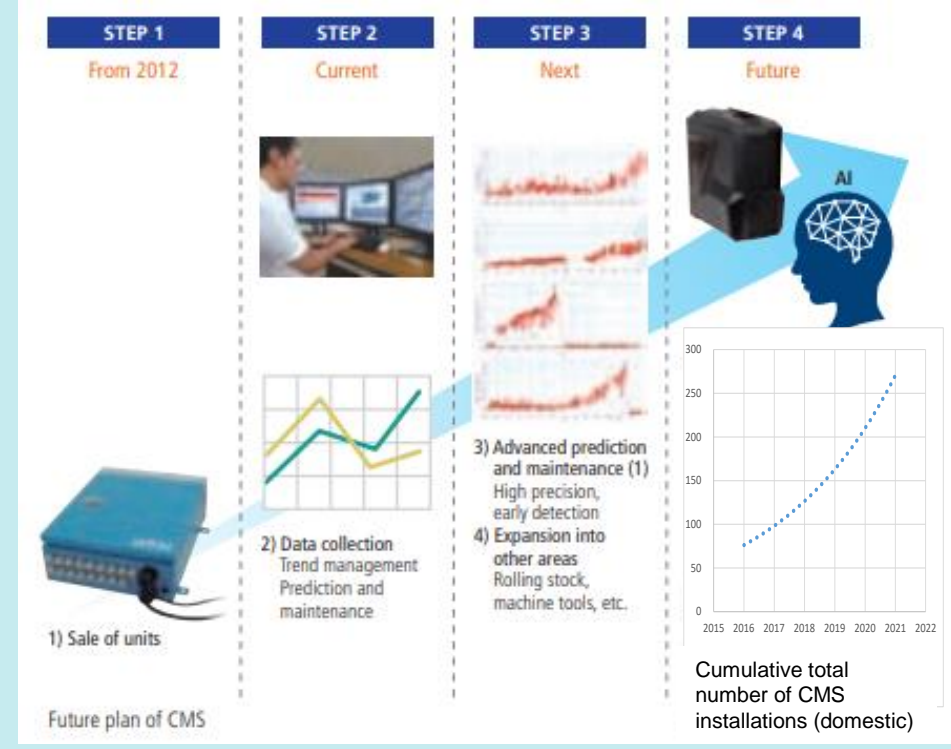
Supply bearings that meet the needs of larger and offshore wind turbines
 Provide high-precision technical information services by abnormal detection technology using IoT



Developing a CMS: Condition Monitoring System Business by Wind Doctor™

No.1 installation share (in Japan)

Future development of the life expectancy forecast technology using AI algorithms
 ⇒ Planned maintenance of bearings and prevention of damage



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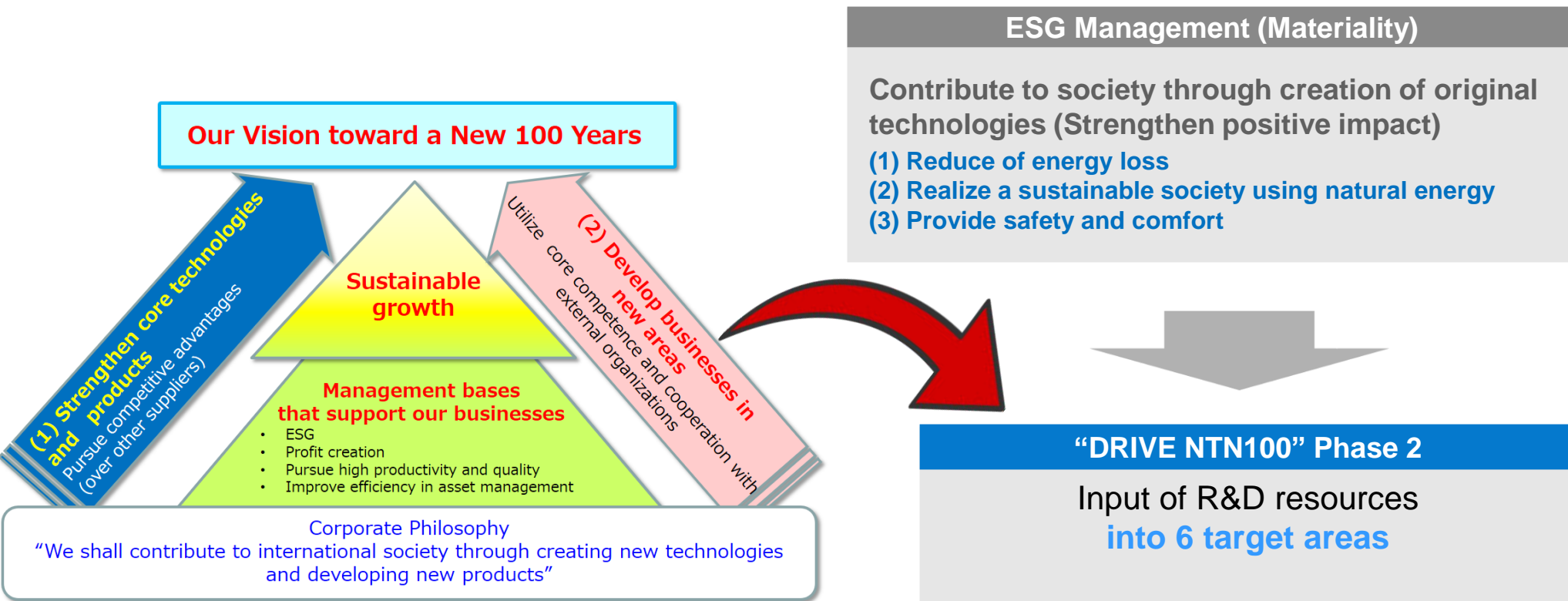
Direction of R&D (from deepening and exploration to product realization)

Contribute to carbon-free society

Contribute to prosperous living

NTN
Make the world **NAMERAKA**

- Strengthen core technologies and products = Existing businesses
- Develop businesses in new areas = New areas and businesses



Medium-Term Management Plan DRIVE NTN100 (from 2018)

Target Areas to Invest R&D Resources

Contribute to carbon-free society

Contribute to prosperous living



Focus on 6 target areas

- Service / solution
- Robot-related module
- Next-generation mobility module
- Renewable energy-related
- Hydrogen-related
- Life science-related

Strategic direction for R&D

Carbon neutrality
(Environmental impact reduction and decarbonization)

Pursuit of safety and comfort

② Realize a sustainable society using natural energy

- Service/solutions
Towards business providing service that leads to sales of products
Transformation into a new business format

AI analysis CMS Bearing-related applications

Robot Machine tools Wind turbines

Bearing with sensor Monitoring

⑤ Provide Safety and Comfort

- Robot-related module
Contribute to automation, labor saving, and productivity improvement in manufacturing industry from perspectives of declining working populations and robot collaboration

Incorporate functions of AI and sensing

i-WRIST

⑤ Provide Safety and Comfort

- Next-generation mobility module
“Strengthen core technologies and products” and “Develop businesses in new areas” from perspectives of CO₂ environmental regulation and response to mobility

Core

New areas

⑤ Provide Safety and Comfort

- Renewable energy-related
Contribute to create a society where people can live safely and with peace of mind through technology of independent power source utilizing power generation and storage by renewable energy

Independent power supply / power generation / storage / monitoring (safety)

② Realize a sustainable society using natural energy

- Hydrogen-related
Develop hydrogen-related products towards realization of carbon neutral
Gain rapidly increasing demand due to transition to hydrogen society

Technology for metal, heat treatment, resin material, and lubrication

- Hydrogen penetration
- Corrosion resistance
- Wear resistance
- Low temperature lubrication
- Low cost
- Lightweight

⑤ Provide Safety and Comfort

- Life science-related
Develop next-generation products for drug discovery and diagnostic chip with the core technology of microscopic coating
Contribute to enriching people's lives

NTN Microscopic Coating Applicator → Develop 3D cell chip → Develop test kit

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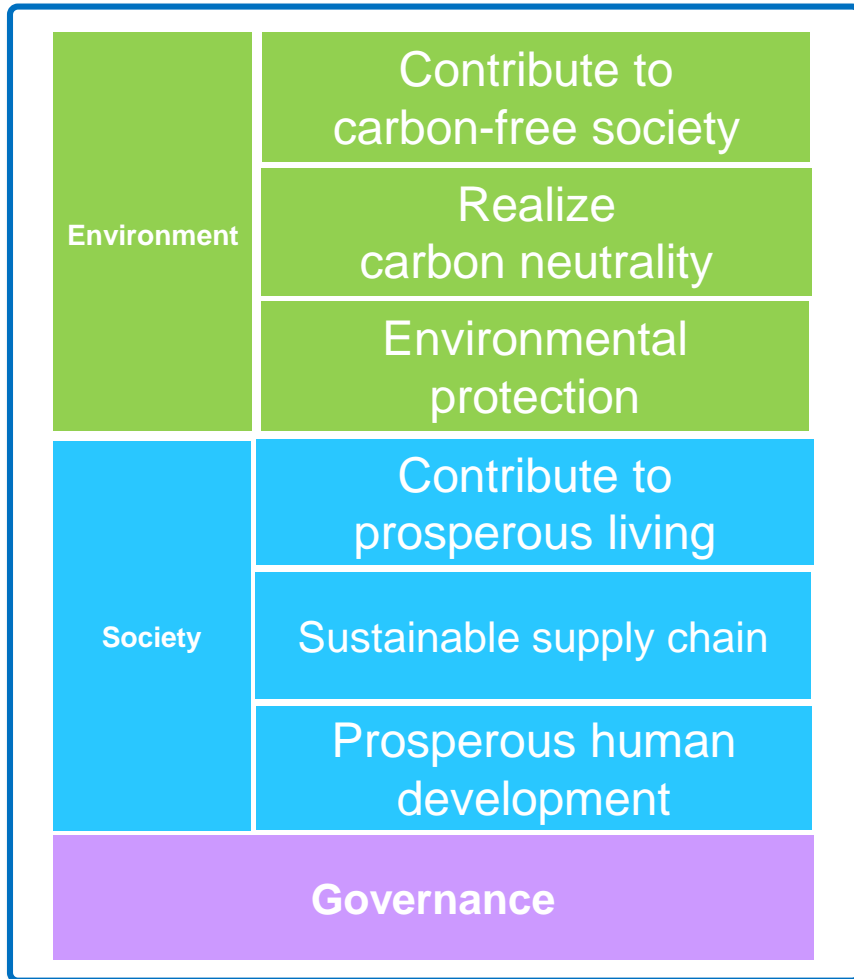
ESG Issues and TCFD Scenario Analysis

Contribute to carbon-free society

Realize carbon neutrality



ESG issues



Opportunities

Risks

TCFD scenario analysis



Contribute to carbon-free society through our products and services

Initiatives to reduce carbon emissions in business activities (carbon neutrality)

Expand analysis results to management and business activities

Realization of a "NAMERAKA Society"

TCFD Scenario Analysis Results and Our Responses

Contribute to carbon-free society

Realize carbon neutrality



[TCFD Scenario Analysis Results]

1.5 °C scenario Case of transition to a carbon-free society

	Event	Impact
Risks	Soaring carbon prices Increasing customer demand for the environment	Cost increase (procurement and operation) Decrease in transactions from customers
Oppor tunit ies	Energy-saving needs	Low friction and lighter weight
	Energy shift	Stable operation of wind power Hydrogen society
	EV shift and CASE of automobiles	Modularization of energy conservation

4°C scenario Case that continue to emit CO₂

	Event	Impact
Risks	Unusual weather (heavy rain, flood)	Shutdown of operations in-house and supply chains
	Increase in annual average temperature	Health damage
Oppor tunit ies	Catastrophic natural disaster	Securing lifelines (electricity)

Our Responses to Climate Change

Risks	Opportunities
<p>Carbon neutrality Scope 1,2: by 2040 Scope3: by 2050</p>	<p>Core Technologies and Core Products Environment-contributing product (Product Realization and Market Development)</p>
	<p>Service Solutions Contributing to stable operation of wind turbine</p> <p>Hydrogen-related Contribute to hydrogenated society</p> <p>Renewable energy-related Supply electric power by independent power supply</p>
	<p>Next-generation mobility module Contribute to EV and Electrification by Developing New Products</p> <p>Electric Module Products</p>
Risks	Opportunities
<p>[Promote safety and health]</p> <ul style="list-style-type: none"> Eliminate human damage caused by natural disasters Establish health management 	
	<p>Renewable energy-related Supply electric power by independent power supply</p>

Toward Realization of Carbon Neutrality

Realize
carbon
neutrality

NTN
Make the world **NAMERAKA**

Reduce CO₂ emissions in the supply chain

CO₂ emissions
Down 50% compared
to 2018 (Scope 1+2)
In 2030

Carbon neutrality
(Scope 1,2)
by 2040

Carbon neutrality
(Scope 3)
by 2050

<Initiatives to reduce CO₂ emissions>

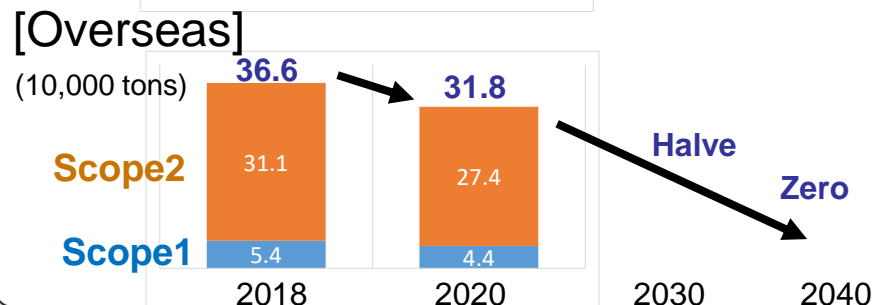
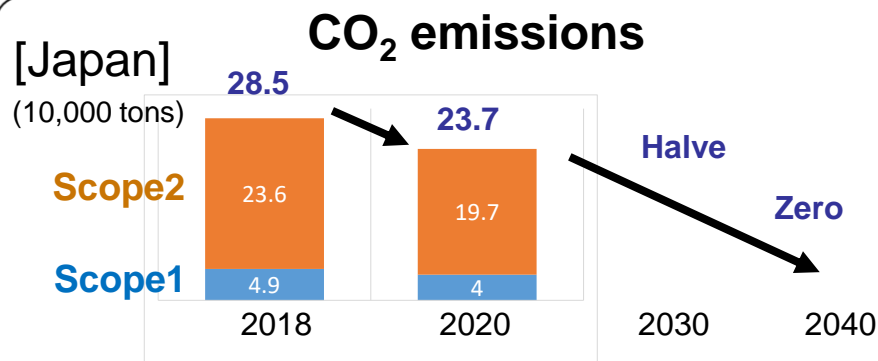
- Reduce CO₂ emissions generated by heat treatment facilities (Fuel conversion, etc.)
- Reduce CO₂ emissions associated with electricity usage (Procurement of renewable energy, introduction of renewable energy equipment, etc.)
- Reduce CO₂ emissions generated in the supply chain (Cooperation and cooperative systems with business partners, etc.)
- Introduce and utilize internal carbon pricing (Energy saving investment, selection of purchased items, etc.)

Scope1

Scope2

Scope3

Scope1,2,3



Ex. Efforts to reduce CO₂ emissions

Scope1

Scope2



Electrically heated vacuum carburizing furnace
(Japan: Kuwana Works)

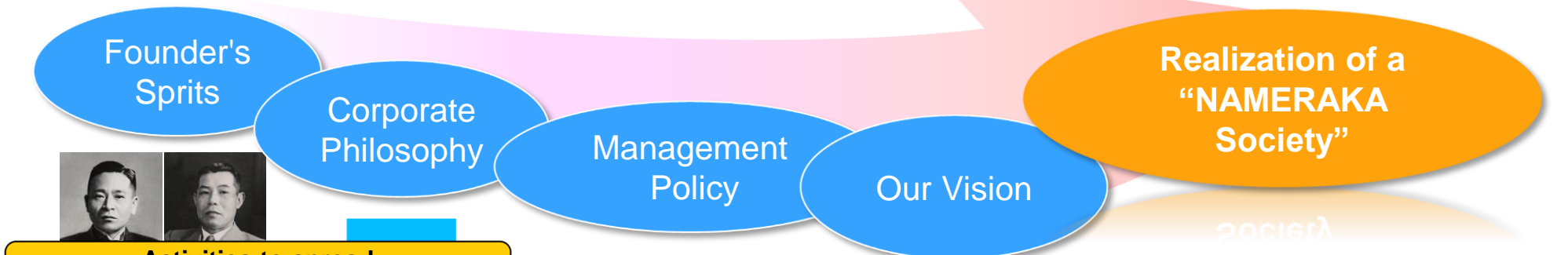


Power supply by solar panels
(China: Guangzhou NTN)

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Engagement with Employees

- Employees are the person who actually promote the realization of a “NAMERAKA Society”
- Build a common sense between our corporate philosophy (purpose) and employees
- Enhance employee’s engagement through activities to spread corporate philosophy and materiality, so that we increase corporate value over the medium to long term



Activities to spread corporate philosophy (since 2016)

Phase 1 Recognition	Phase 2 Empathy/Understanding		Phase 3 Practice
Internal communication journal	Rank-specific education	Corporate Philosophy Dialog • For executives • For overseas executives • For division managers	NTN PROUD AWARD ceremony 1st :April 2018 2nd:December 2019 3rd:Canceled due to the pandemic
NTN SPIRIT BOOK, card and poster	e-learning		
	Follow-up on site activities		
NTN PROUD AWARD			

NTN PROUD AWARD

- Opportunity to think about realization of a “NAMERAKA Society” for each employee
- Link daily work with materiality to find its value and happiness



Booklet



Corporate Philosophy Dialog

In 2019

- Transition from a company with a Board of Company Auditors to a **Company with a Nominating Committee, etc.**
- Strengthening **corporate governance** by separating supervision and execution
- By establishing 3 committees (the Nominating Committee, the Compensation Committee, and the Audit Committee) on which Outside Directors have the majority, **the effectiveness of supervisory functions** and **the transparency of management** has been enhanced

In 2020

- The first **female Director** (Outside Director) is appointed

In 2021

- **First change of President based on the recommendation of the Nominating Committee**
- Flattering the Executive Officer system to eliminate hierarchical relationship

Mission as President

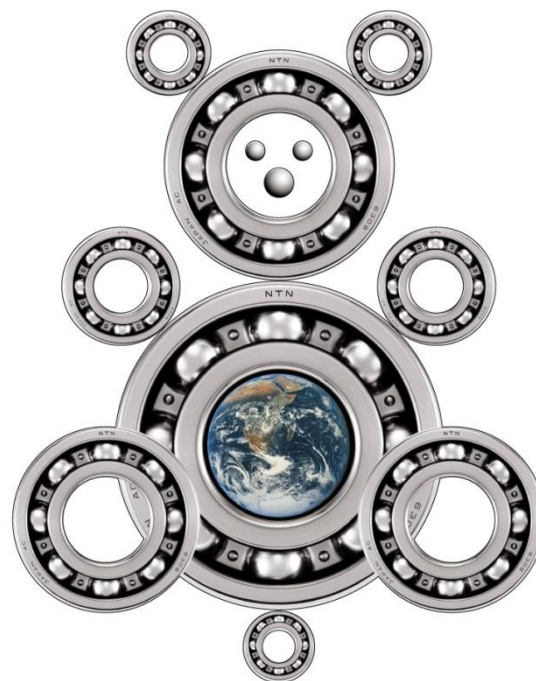
**Revitalize
NTN**

**Develop human
resources that will
lead the next
generation**

The goal

- Strengthen **team management**
- Move to evaluation system based on **responsibility and results**
Establish a system that makes it easy to take on new challenges

**DRIVE
NTN100**



NTN
Make the world **NAMERAKA**

Digitalization, Resources, Innovation, Variable cost reformation, Efficiency improvement
NTN Transformation for New 100years

- These materials, presentations, and responses to the ongoing question and answer session include forward-looking statements and business strategies, which are based on our management's beliefs in light of currently available information.
- Statements and statements based on these forward-looking statements are not guarantees of future performance. Please be aware that actual results may differ from the forward-looking statements due to a variety of factors, including changes in demand for products, currency exchange rates, interest rates, and contingent liabilities.