

# Mid- to Long-Term Vision

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President

Shigeru Kobayashi



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**NGK INSULATORS**

# NGK Group Vision

Road to 2050

# NGK Group Philosophy

## Our Mission

**Enriching Human Life  
by Adding New Value to Society.**

## Our Values

Quality of <b>People</b>	<b>Embrace challenges and teamwork.</b>
Quality of <b>Product</b>	<b>Exceed expectations.</b>
Quality of <b>Management</b>	<b>Social trust is our foundation.</b>



# NGK Group Vision

What we want to be

**A company to contribute to carbon neutrality and digital society with our unique ceramic technologies**

What we must do

**Convert our business structure through 5 Transformations**



## NGK Group Code of Conduct

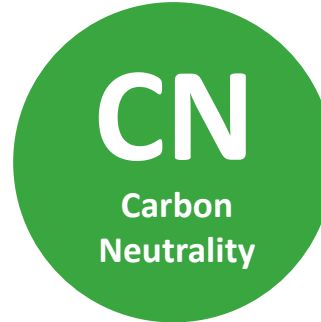


Firm compliance with NGK Group  
Basic Guidelines for Compliance Activities

# Social Issues and NGK



## Backcasting from the envisioned society of 2050



Development of electric power

Environmental regulations and global competition

Extreme changes in the world

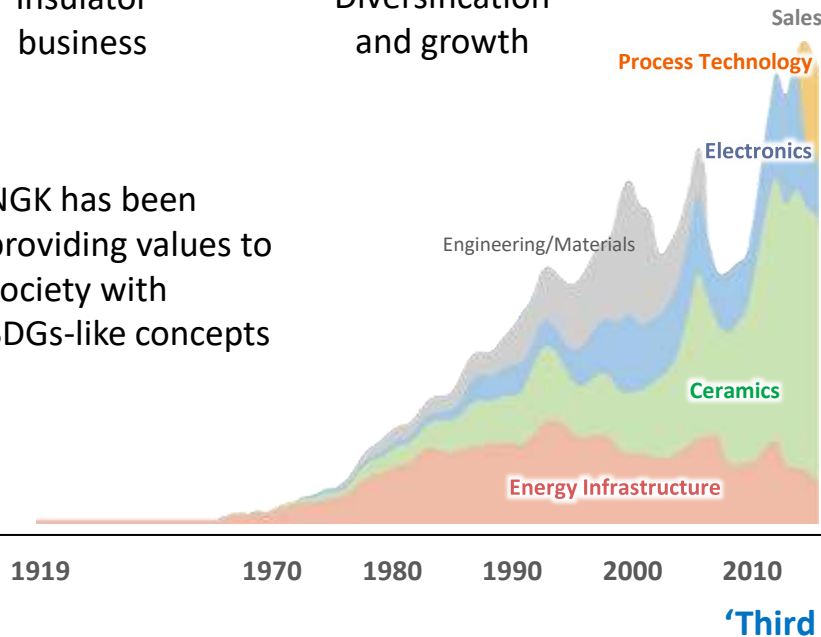
Insulator business

Diversification and growth

With our unique and original ceramic technologies, we will realize things that are usually regarded as impossible

NGK has been providing values to society with SDGs-like concepts

Implementing our services in society by expanding from products to solutions



# Image of the Future Society 2050

## Making mobility clean and safe

EVs as driving electronic devices

Fully autonomous cars

Photovoltaics + EVs

Space elevators

Mobile offices

Flying cars

6G

IoT Everywhere

Optical networks

Super-virtual reality

Quantum computers

Ultra-small wearables

Quantum communications

Maintenance-free IoT modules

## Making smart society more comfortable

Digital Society

## Making clean energy more efficient

Carbon capture and utilization/ carbon capture and storage (CCU / CCS)

Floating offshore wind-power generation

Distributed regional power supply

High-efficiency photovoltaic cells

Space power generation

Remote power supply

Nuclear fusion

Hydrogen fuel

Methanation

Biomass fuel

Carbon Neutrality

Smart factories

Vegetable factories

Carbon-neutral factories

Sterilization / antimicrobials

Industrial water / water recycling

Pharmaceutical manufacturing equipment

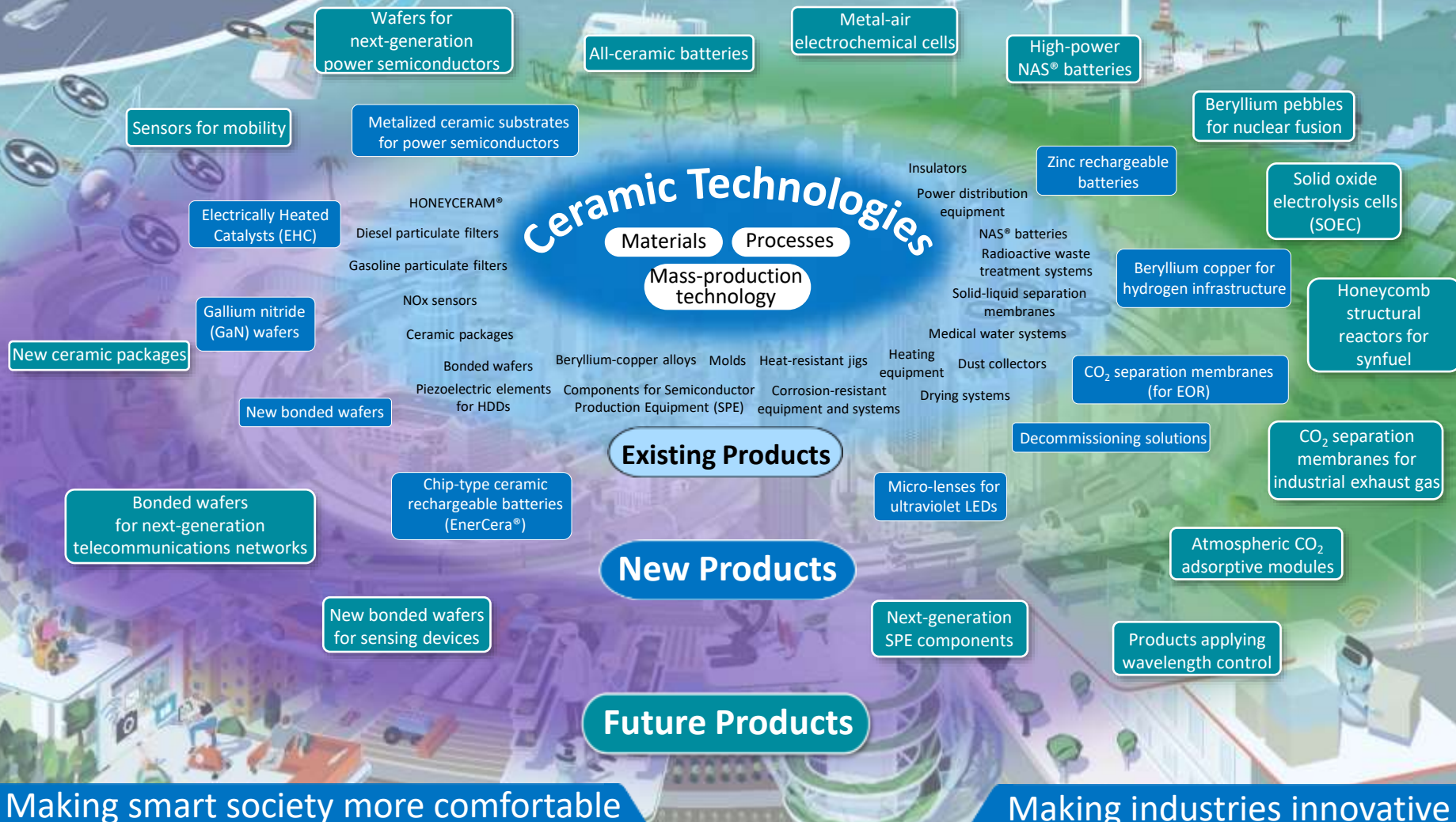
## Making industries innovative

# NGK's Contribution Items



Making mobility clean and safe

Making clean energy more efficient



Making smart society more comfortable

Making industries innovative

# New Value to Be Provided by NGK



## New products

Under harsh usage,  
realizing high-precision separation  
and capture of CO<sub>2</sub>

CO<sub>2</sub> separation membranes



Large ceramic membranes that can separate CO<sub>2</sub> at the molecular level with our unique hydrothermal synthesis technologies

CN

Carbon  
Neutrality

Ceramic Technologies

Materials Processes

Mass-production  
technology

As there is no risk of fire accidents,  
they can be installed indoors and  
safely realize emergency power supply  
and renewable energy utilization

Zinc rechargeable batteries



High-safety and high-capacity storage  
batteries using our proprietary ceramic  
separators and water solutions as the  
electrolyte

## Future products

### SOEC (Solid oxide electrolysis cells)

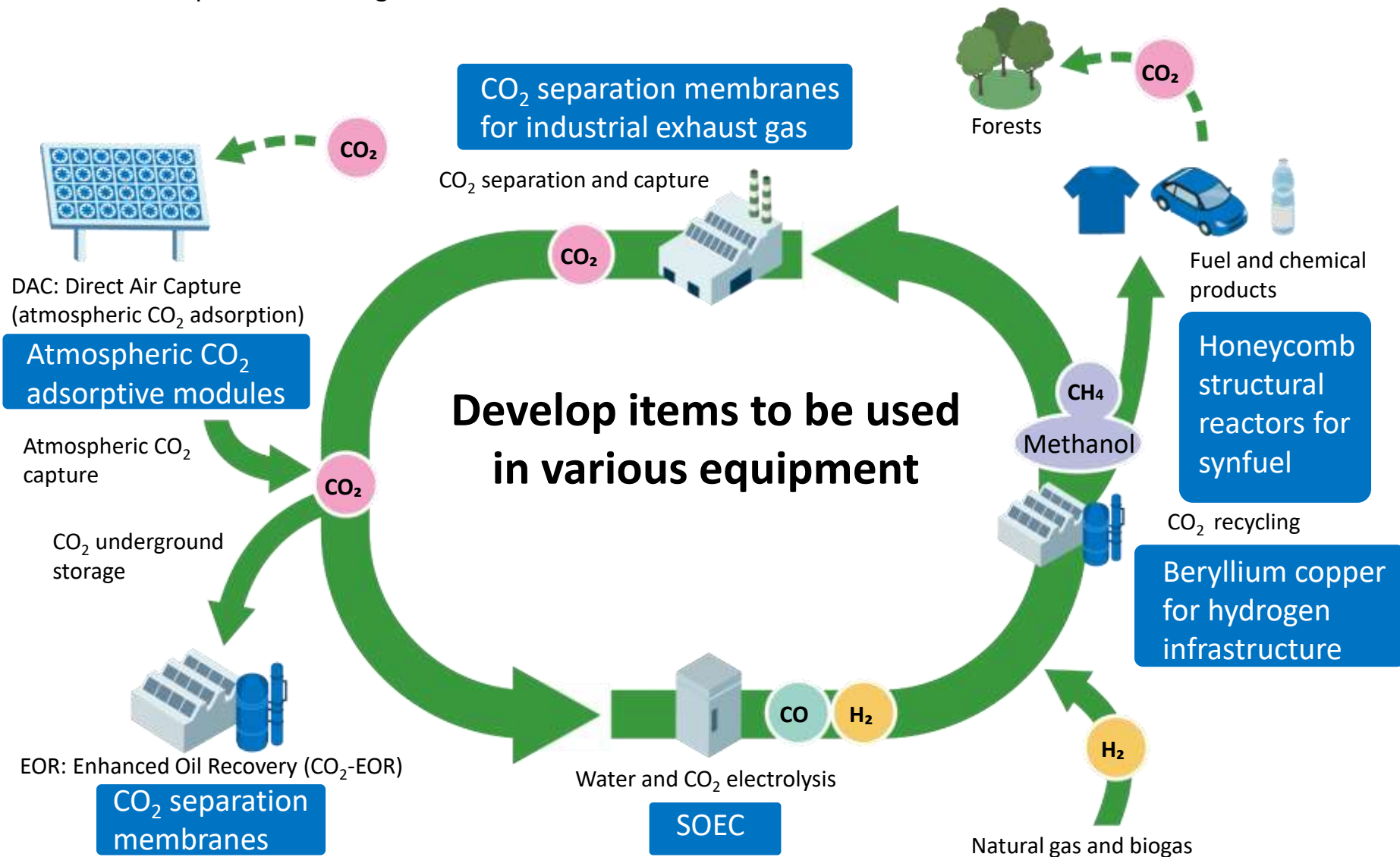
We will use ion-conducting ceramics to create fuels and raw materials from CO<sub>2</sub> and water with high efficiency.

### Honeycomb structural reactors for synfuel

We will utilize large-scale extrusion and separation membrane technologies to make fuel and raw-material synthesis more efficient.

# Examples in CCU / CCS

CCU: Carbon Capture and Utilization  
CCS: Carbon Capture and Storage



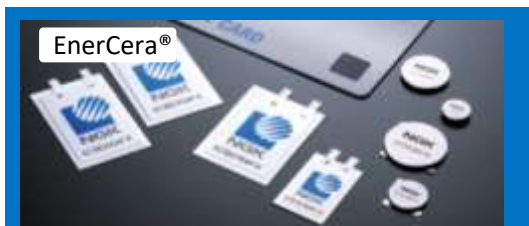


# New Value to Be Provided by NGK

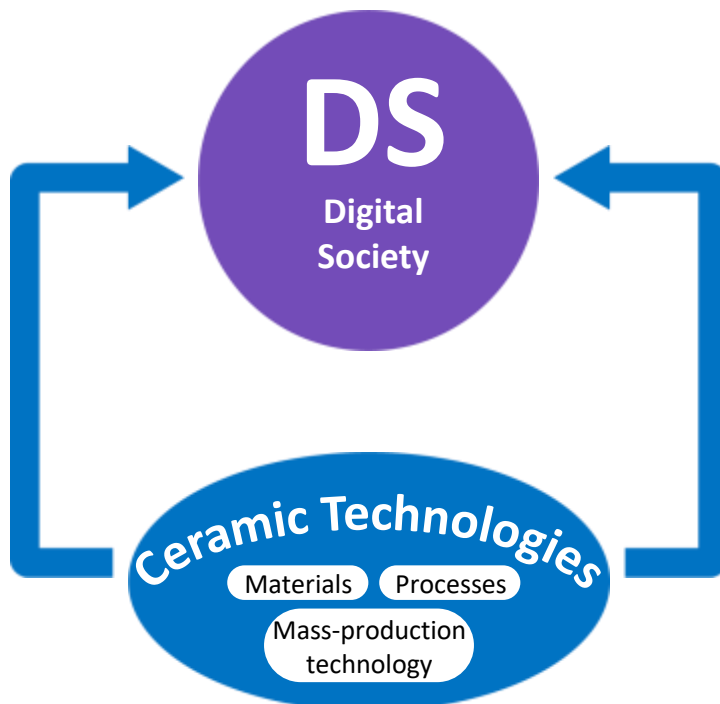


## New products

- Realizing a maintenance-free IoT
- More secure smart cards
- Wearable devices closer to our life



Highly heat-resistant, high-capacity, high-power, fast-charging and ultra-small and thin batteries utilizing our unique crystal-orientation control



Contribution to 5G and next-generation telecommunications networks with high speed and high data capacity



Highly functional bonded wafers realized by our unique precision-polishing and bonding technologies

## Future products

### Sensors for mobility

Our high-precision package technology will contribute to the realization of autonomous driving, such as the evolution of LiDAR\*

### New bonded wafers (for sensing devices and next-generation telecommunications networks)

Contributing to autonomous driving sensors and ultra-high-speed communication by utilizing ultra-thin polishing and multi-materials bonding technologies

\*Light Detection and Ranging

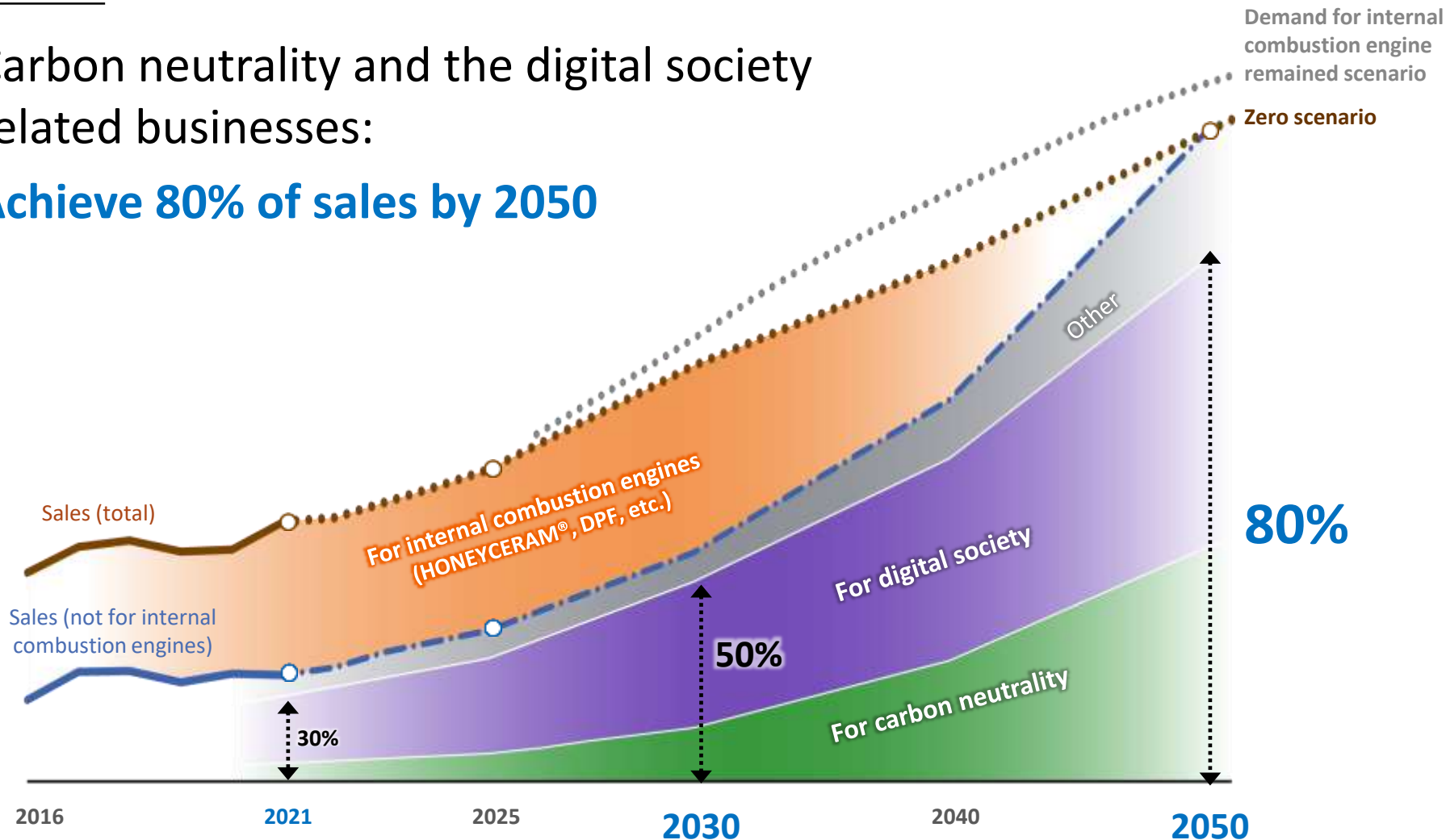
# Business Structure Conversion



## Our Aim

Carbon neutrality and the digital society related businesses:

**Achieve 80% of sales by 2050**



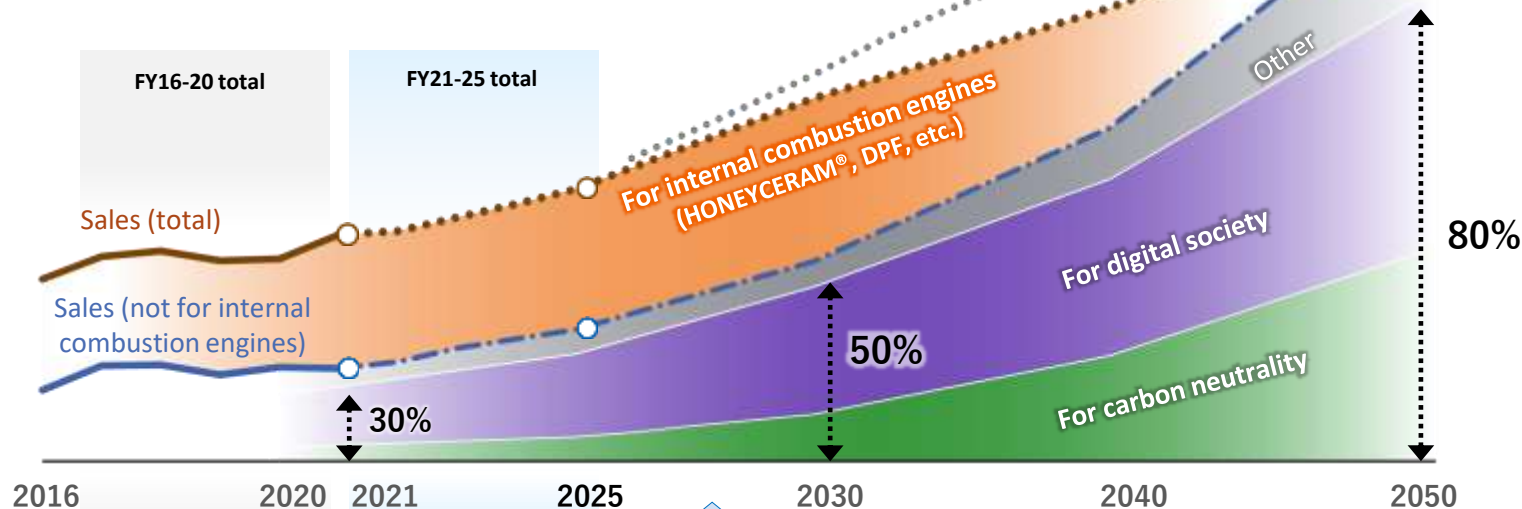
# Our Prospect for the Next 5 Years



## Input cash into new growth to achieve the conversion of business structure

Demand for internal combustion engine remained scenario

Zero scenario



Capital investment	376.6 billion yen
R&D	108.4 "
Operating income	303.7 "
Free Cash Flow	+ 2.7 "
Interest-bearing liabilities	+ 100.3* "
	*Increase in balance

250 billion yen	Input for sustainable growth
130 "	
400 "	Retained funds
+250 "	
± 0 "	Return

### Prospects for FY2025

Sales	600 billion yen
Operating income	90 "
Net income	60 "
ROE	10 %
Dividend payout ratio	30 %
Earnings per share (EPS)	200 yen

## To Realize What We Want to Be

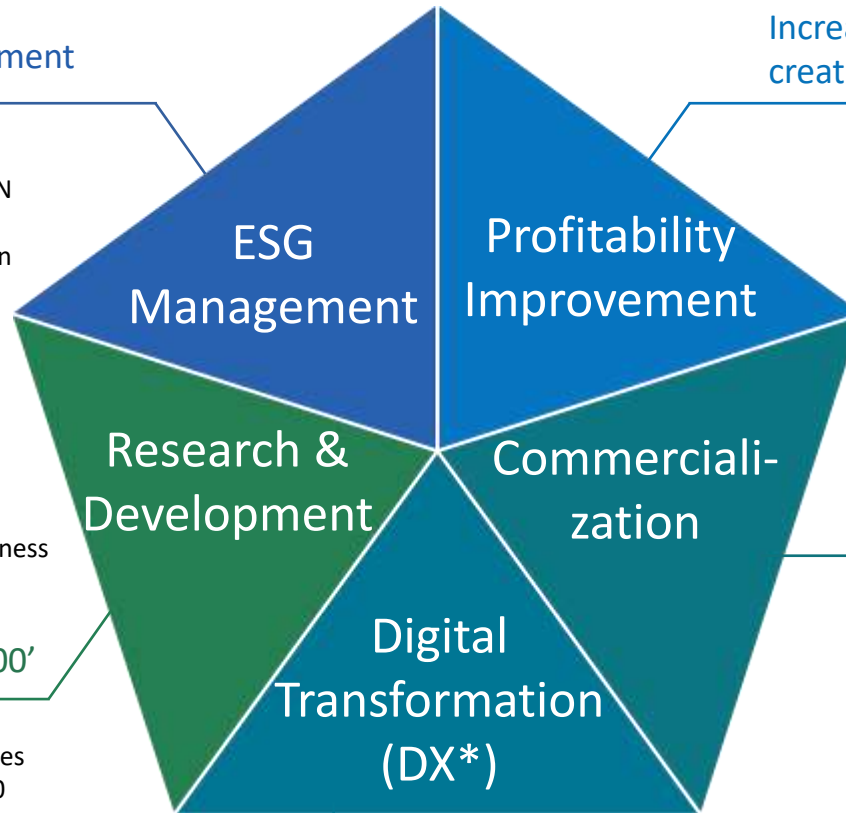
### ESG as a foundation of management

- E** NGK Group Environmental Vision:  
Contributing to achievement of CN through products and services  
Realizing net zero CO<sub>2</sub> emissions in our own activities by 2050
- S** Solutions to social issues through businesses  
Recruitment and cultivation of human resources
- G** Gradual reform of governance  
Development of a culture of openness

### Achievement of 'New Value 1000'

- Attain more than 100 billion yen of sales in newly launched businesses\* in 2030
- Investment of 300 billion yen in R&D over the next 10 years
- Concentration in the CN and DS areas (80%)

\*Businesses just launched and to be newly launched in the future



Increase of earning power, creating a cycle for growth

- ROIC / Analysis and improvement of profitability in each business
- Strengthening entire process chain

Reinforcement of societal implementation of our products

- Improvement of cross-divisional marketing capabilities
- Expansion of collaboration with outside partners
- Expanding solution business

Propulsion for the whole transformation

- Digitization of all processes in the company
- Training of IT liaisons in each division

\*DX: Digital Transformation  
Transform business models and corporate structure with digital technology

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# Surprising Ceramics.



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The purpose of this brief is information disclosure for better understanding of NGK Group's policies, projections and financial condition.

This brief does not solicit buying and selling of NGK's shares.

The figures included in this brief, including the business performance targets and figures, are all projected data based on the information currently available to the NGK Group, and are subject to variable factors such as economic conditions, competitive environments and future demands.

Accordingly, please be advised that the actual results of business performance may differ substantially from the projections described here.