# Value Creation by the NGK Group

# **Using Advanced Technology to Power** a Unique "Value Creation Engine"

Thanks to the unique ceramics technology it has cultivated over many years, the NGK Group is able to develop a wide variety of high-quality products that it seeks to offer in a growing range of overseas markets. As a result, the NGK Group creates diverse value, which helps to address social problems.

# Social problems

Development of electricity infrastructure **Environmental pollution prevention** 

Spread and expansion of renewable energy IT innovation

## Input (fiscal 2017)

## Financial capital

- Total assets 836.3 billion ven
- Cash and cash 169.9 billion ven equivalents

#### Manufactured capital

- Capital
- 71.7 billion ven
- Fixed assets 363.9 billion ven

## Intellectual capital

- Investment in R&D 21.1 billion ven
- Number of patents held 4,186

### **Human** capital

• Employees 19,000 people

### Social and relationship capital

• Consolidated Domestic 21 companies subsidiaries Overseas 37 companie

#### Natural capital

- Electricity 880,000 MWh
- 142 million Nm<sup>3</sup> • Gas
- 2.25 million liters • Oil
- Raw materials 192,000 metric tons
- PRTR-listed

707 metric tons

Water

4.32 million m<sup>3</sup>

# Value creation engine of the NGK Group

#### **Corporate Philosophy**

NGK products and technologies must create new value and contribute to the quality of life



Ceramics technology ►See pp 11-12 "Competitive Strength."

**Diversification** 

Global business development

# Corporate governance

►►See pp 100–131 "Corporate Governance."

**CSR Management** 

# **Output**

### **Power business**





Insulators

NAS® batteries

#### **Ceramic products business**





Ceramics for purifying automobile exhaust

NOx sensors

### **Electronics business**





Ceramics for electronic and electrical devices Berylliumcopper products

#### **Process technology business**





Ceramics for semiconductor manufacturing equipment

Industrial machinery and

# Results (fiscal 2017)

**Consolidated** net sales

451.1 billion yen

Profit attributable to owners of parent

45.8 billion yen

ROE

10.4%

Total sales of products contributing to environ-mental protection

245.6 billion yen

Social contribution spending

0.3 billion ven

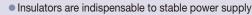
# Avoided NOx emissions

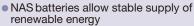
4 million metric

Note: Assumes exhaust systems are equipped on new automobiles that do not have equivalent systems.

# Values provided by the NGK Group

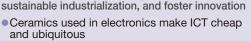
Ensure access to affordable, reliable, sustainable, and modern energy for all





Ceramics for purifying automobile exhaust make exhaust gas clean, thus enabling clean usage of fossil fuels

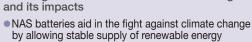
Build resilient infrastructure, promote inclusive and





- Ceramics used in semiconductor manufacturing equipment let the semiconductor industry be the foundation for modern daily life
- Metal products are widely used in mobile phones, automobiles, industrial equipment, and other devices that undergird modern life

Take urgent action to combat climate change





Make cities and human settlements inclusive, safe, resilient, and sustainable

 NAS batteries enable innovation in urban energy management for the creation of sustainable cities



Ensure healthy lives and promote well-being for all at all ages

 Ceramics for purifying automobile exhaust make exhaust gas clean



Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

 Ceramic membrane filters purify wastewater to prevent marine pollution



Ensure availability and sustainable management of water and sanitation for all

- Ceramic membrane filters provide highly safe water
- Ceramic membrane filters purify wastewater

