

# 2030

# VISION



**SAFE AND COMFORTABLE LIFE ON OUR GREEN PLANET**

— We will try to make this happen with technology —

**Connect with Innovation**

# Glorious Excellent Company

The Sumitomo Electric Group (SEG) has prepared a long-term vision targeting 2030 in the great changes in business environment.

From FY2023, we will develop the concrete business plan every 3 years based on this “2030 Vision.”

SEG will strive to enhance our corporate value with stakeholder’s support to be “Glorious Excellent Company.”

As of  
2022

## Forecasting

Appropriate, prompt, and flexible action

First  
medium-term plan  
Three years

Second  
medium-term plan  
Three years

.....

2030  
Target

Backcasting

## What SEG strives to Be “Glorious Excellent Company”

The word “Glorious” represents the philosophical and qualitative goal of SEG in embodying the “Sumitomo Spirit,” as well as the “Sumitomo Electric Group Corporate Principles,” “Excellent” symbolizes what SEG should be in a quantitative sense, which is to achieve excellent business performance.

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# 1



## Management Policy

- Corporate Philosophy
- Top Technology
- Global Presence
- Diversity & Inclusion
- Sustainability
- Purpose



# Corporate Philosophy

While honoring the “**Sumitomo Spirit**” inherited over generations and the “**Sumitomo Electric Group Corporate Principles**,” SEG has always conducted business in harmony with the public benefit based on the fundamental spirit of “**contributing to public benefit through business,**” and **strive to ensure mutual prosperity with our stakeholders.**

## Sumitomo Spirit

*Banji-nissei*

“Do your sincere best, not only in business, but also in every aspect of your life.”

*Shinyo-kakujitsu*

“Place importance on integrity and sound management”

*Fusu-furi*

“Do not act rashly or carelessly in pursuit of easy gains.”

## Principles inherited over generations in Sumitomo

“Attaching importance to technology,” “Respect for human resources,”  
“Long-range planning,” and “Mutual prosperity, respect for the public good”

## Sumitomo Electric Group Corporate Principles

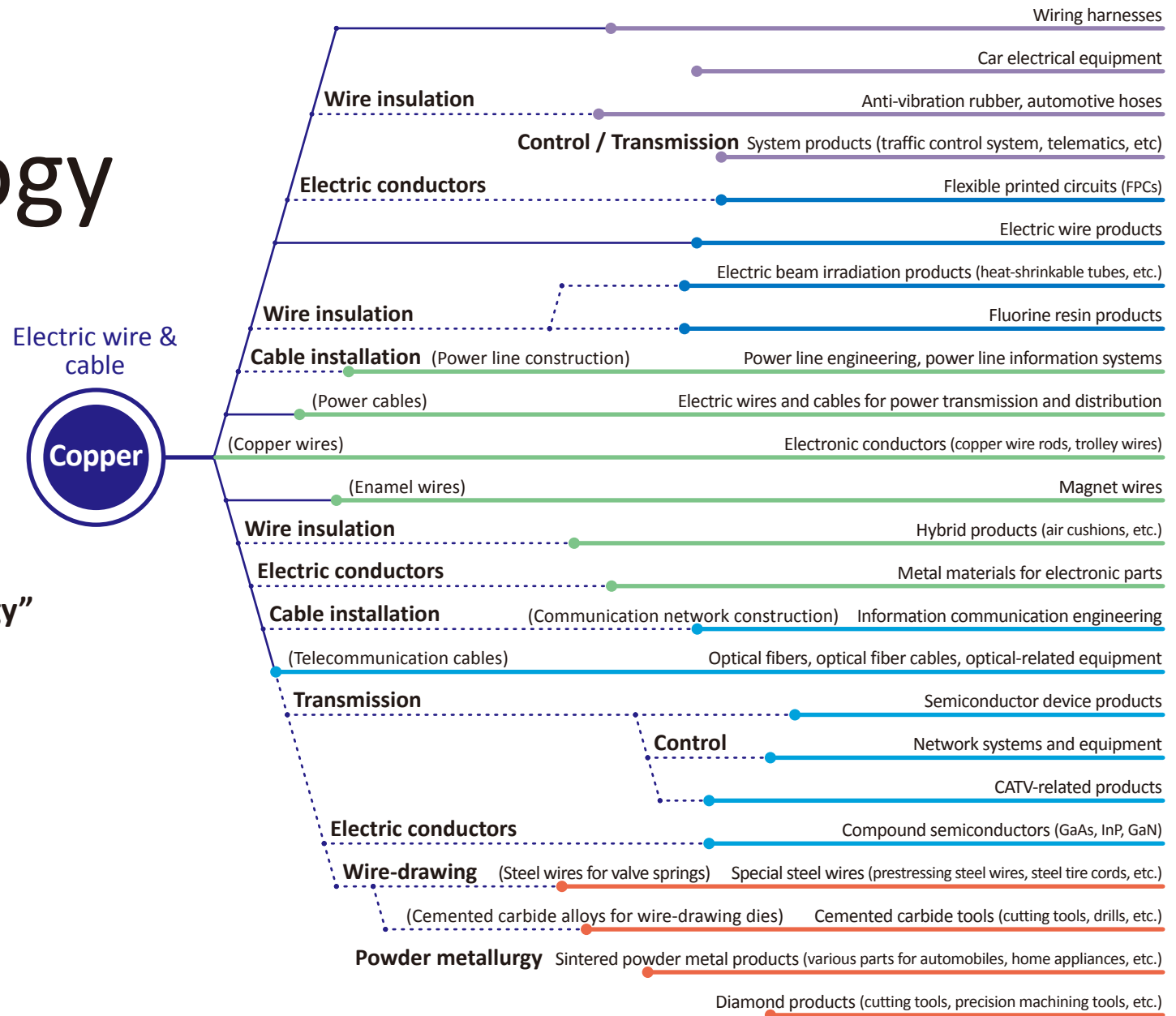
Each company of SEG shall

- Offer the very best goods and services to satisfy customer needs.
- Build technical expertise, realize changes, and strive for consistent growth.
- Contribute to creating a better society and environment, with firm awareness of our social responsibility.
- Maintain high corporate ethics and strive to become a company worthy of society's trust.
- Nurture a lively corporate culture that enables employee self-improvement.

# Top Technology

Originating from the copper wire and cable business, SEG has developed a wide variety of materials and products in using the latest technologies, which form a Technology Genealogy like a large tree with interacting branches.

SEG continues to pursue “**top technology**” on developing the technologies to connect and support society. And by our **integrated power** and **innovation**, we contribute to improving society further on a global basis.



# Global Presence

By creating new value through top technology, we have satisfied various global market needs.

We will continue to contribute to the development of global infrastructure and industries through **SEG's global business activities.**



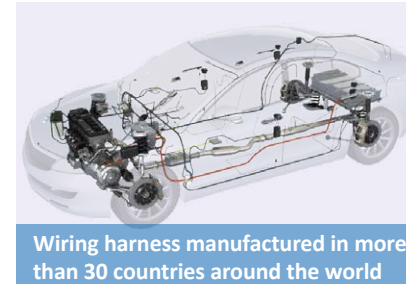
Submarine cable between the United Kingdom and Belgium



Optical fiber installed in Singapore



Traffic control system in Phnom Penh, Cambodia



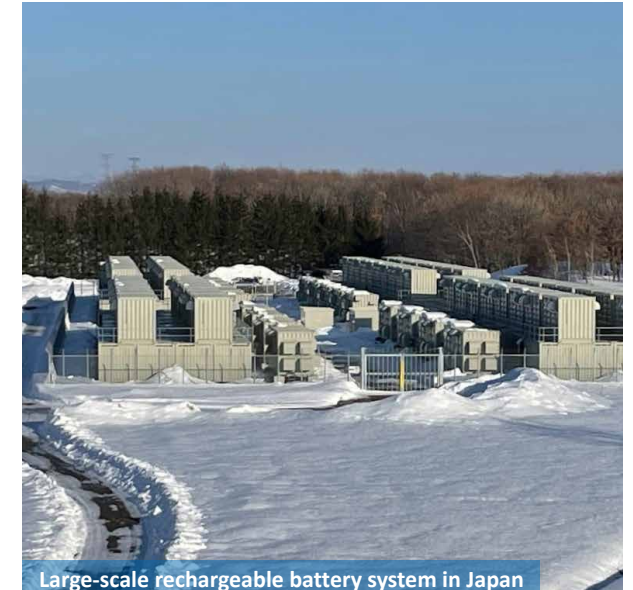
Wiring harness manufactured in more than 30 countries around the world



PC steel wires for bridge in Vietnam



Trolley wire for a railway in India



Large-scale rechargeable battery system in Japan



# Diversity & Inclusion

Our global activities are supported by 280,000 employees at more than 400 group companies in various countries and regions across the world (as of the end of March 2022).

We will **boost our energy** and **increase the competitiveness** of the entire group by **maximizing the use of individualities and capabilities of our diversified human resources**, along with creating top technology.

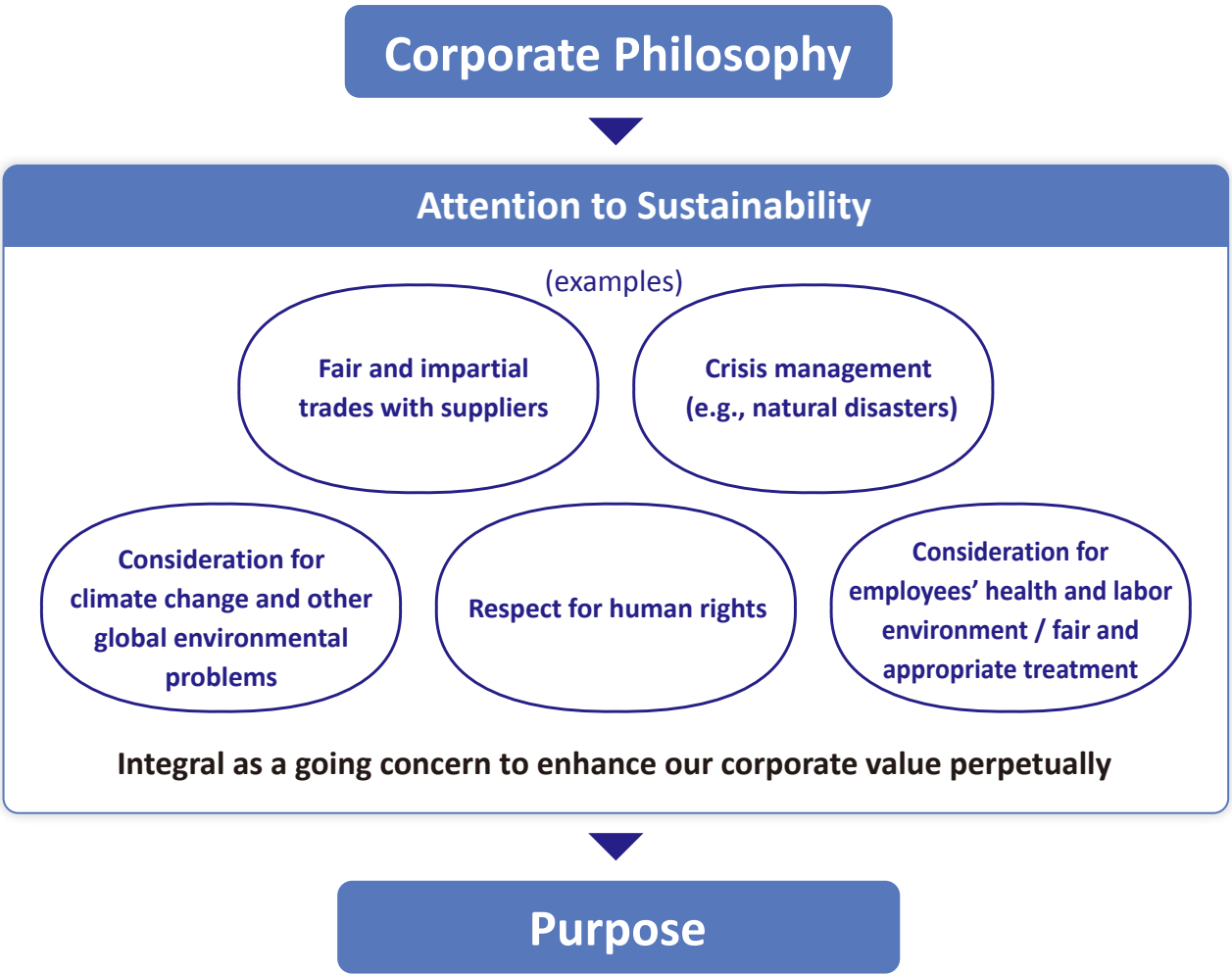


# Sustainability

Our global activities and supply chain are faced with numerous risks, such as infectious disease, natural disasters, and changes in the international situation like Bloc economy.

**While responding to such risks appropriately, we will continue to strive to enhance our corporate value perpetually through respecting the global environment and human rights, giving consideration to employees, and conducting fair and impartial trades.**

## Basic Policy for Sustainability Management (Established in April 2022)



# Purpose

Based on the fundamental spirit of **“contributing to public benefit through business, and striving to ensure mutual prosperity with our stakeholders,”**

“ We will continue to develop technologies  
to connect and support society on a global basis  
by using our integrated and innovative power. ”

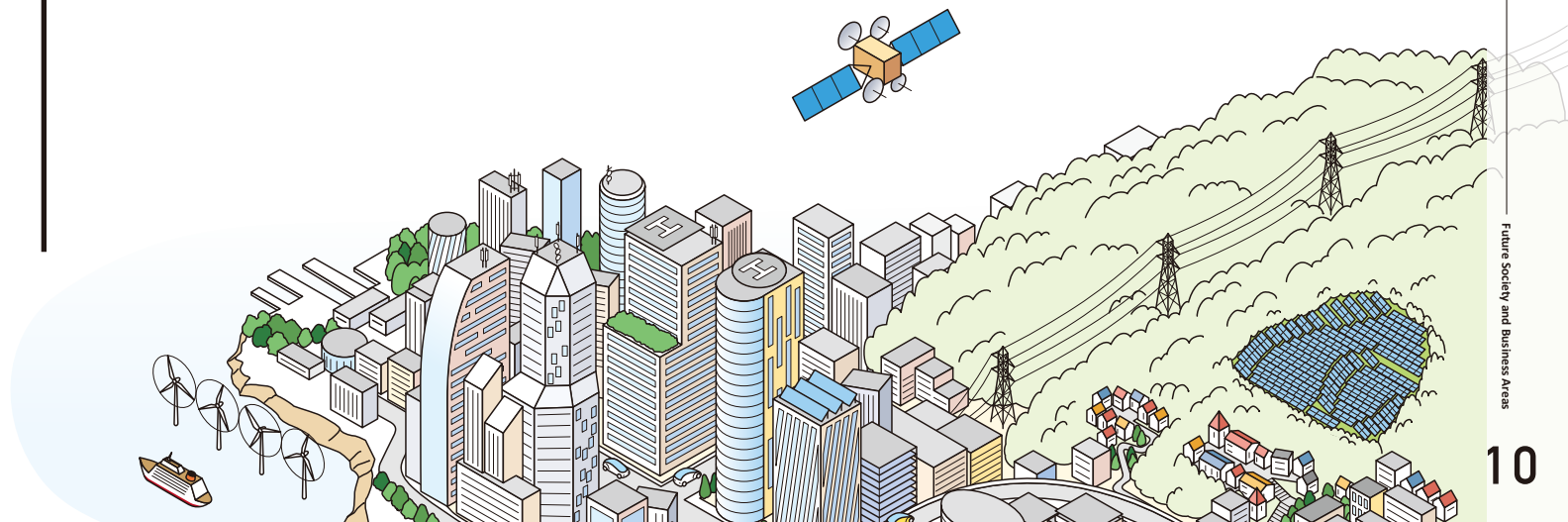
SEG continues to pursue our group purpose as above.

# 2



## Future Society and Business Areas

- **Future Society in 2030  
and What to realize**
- **Business Areas – Focusing Fields**





# Future Society in 2030 and What to realize

It is becoming even more imperative to realize a sustainable global environment toward 2030.

SEG will contribute to making society even “safer” and “more comfortable,” and also we will integrate power to achieving “green,” environmentally friendly society.

Since our establishment

## Safety

To **make society even “safer,”** we supply various products that support infrastructure and industries.

High durability

High strength

## Comfort

To **make society even “more comfortable,”** we supply high-quality, high-performance products to global markets.

High speed

Large capacity

## Further Emphasis

## Green

To **realize a “green” society,** we will integrate power to achieve carbon-free society and proceed with related operations.

High efficiency

Low loss

— We will place our focus on realizing “green society” to sustain a “safe” and “comfortable society” perpetually.

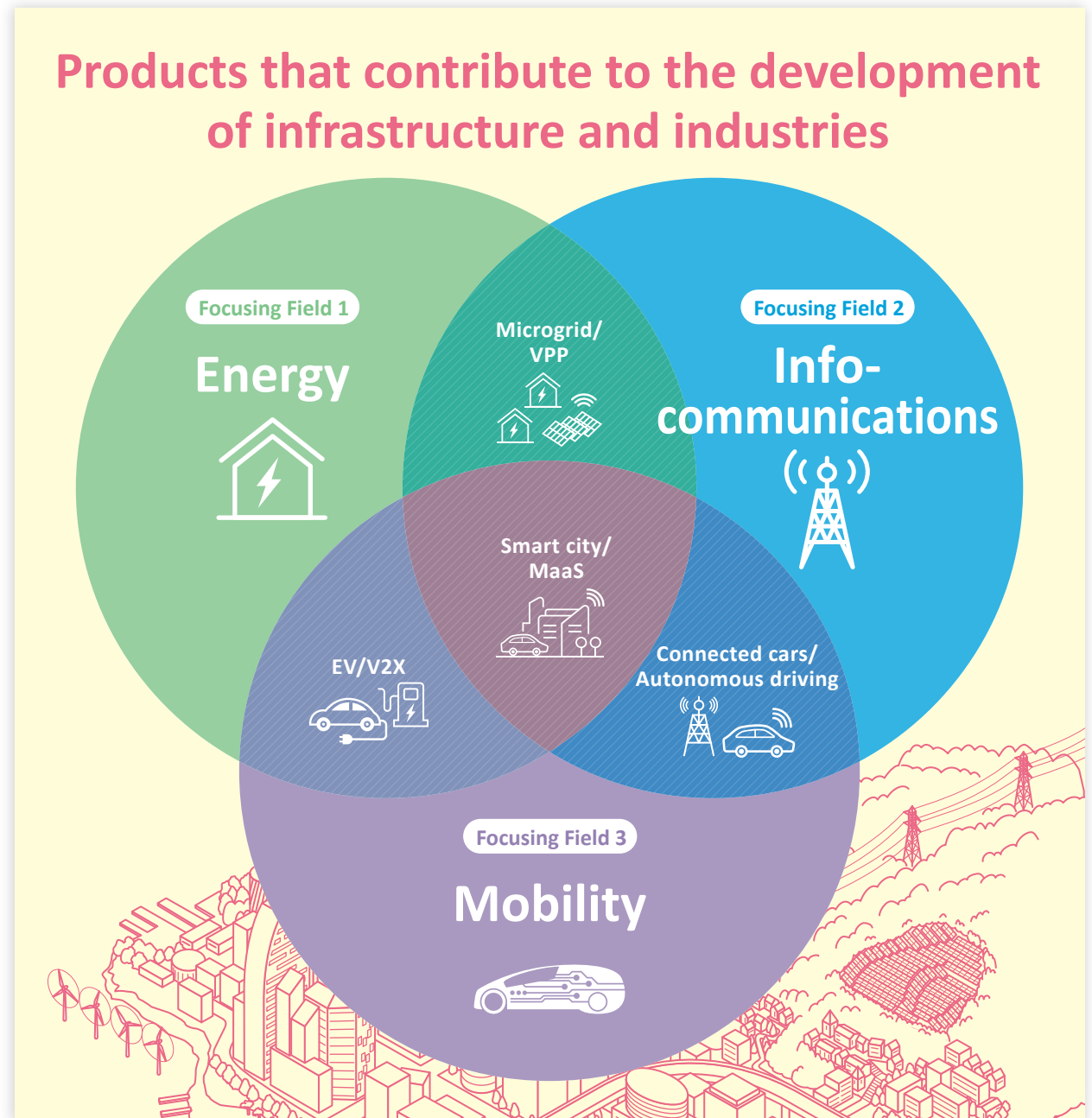
# Business Areas

## – Focusing Fields

To realize our ideal society, we will continue to provide an extensive range of **“products and services that contribute to the development of infrastructure and industries.”**

In addition, we focus mainly on **three fields: “energy,” “info-communications,” and “mobility.”**

Utilizing the technological expertise we have gained by operating in all these fields, we will make inroads into the three fields including their integrated fields by displaying **our overall integrated power**. We will identify the needs generated in step with social changes, such as GX, DX and CASE, and respond to the market expectations.



# 3



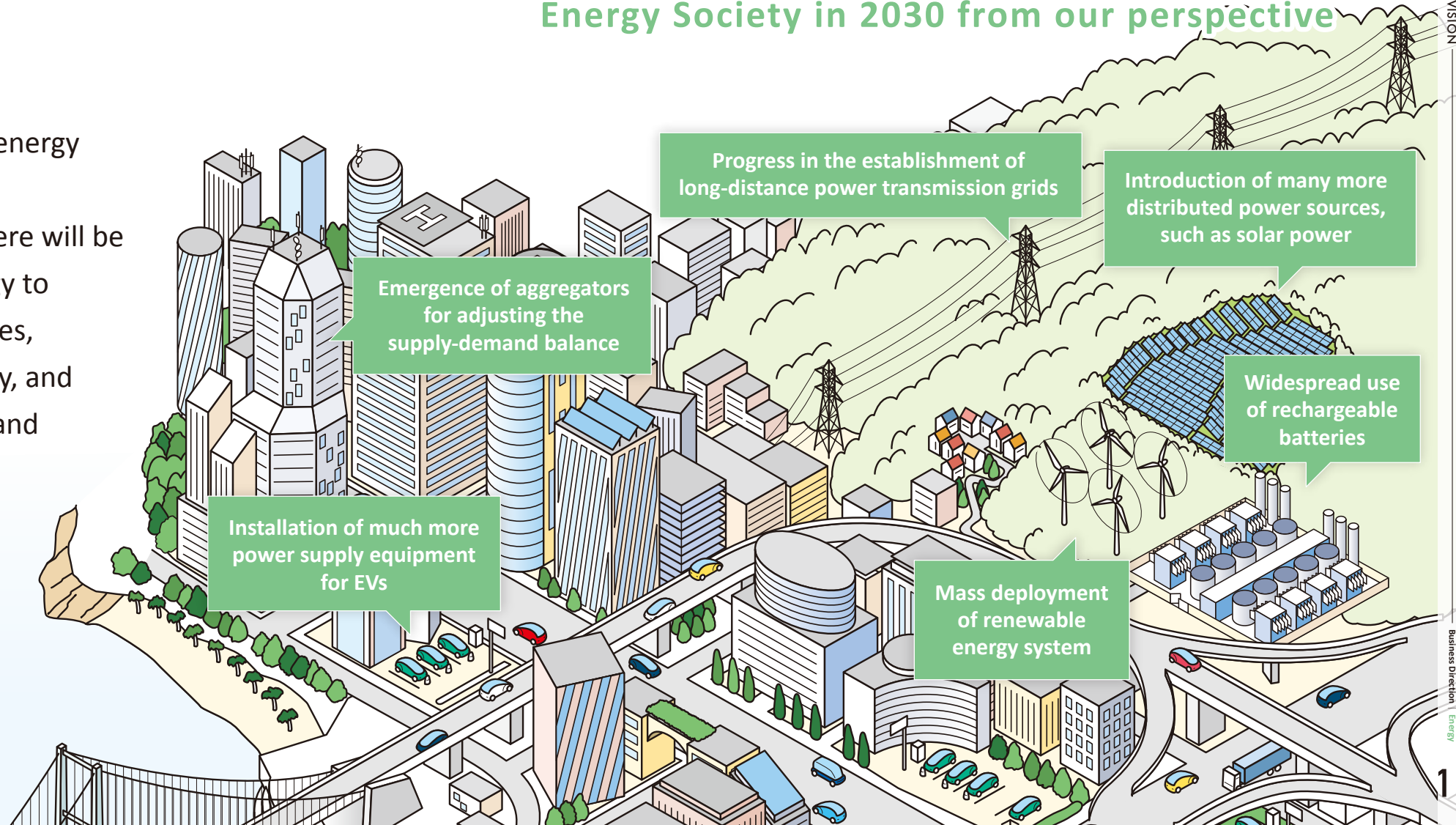
## Business Direction

- Energy
- Info-communications
- Mobility
- High-Performance Products and  
Materials for three Focusing Fields
- Contribution to a “Green” Society

# Energy

With more renewable energy introduced to realize a carbon-free society, there will be calls for new technology to reinforce the power lines, enhance their efficiency, and adjust the supply-demand balance.

## Energy Society in 2030 from our perspective



## Future Business Environment

### Mass deployment of renewable energy system

Introduction of solar and wind power will be further encouraged.

- **Increase in the distance between power generation sites and consumption sites**

→ Due to the introduction of natural energy whose generation sites are far from mass consumption sites, progress will be found in the establishment of efficient, long-distance, direct-current transmission grids.

- **Unstable output**

→ Since power output is affected by natural conditions, there will be growing demand for adjusting the supply-demand balance through, for example, rechargeable batteries.

### Mass deployment of distributed power sources

Due to the introduction of many more distributed power sources, such as solar power, rechargeable batteries, and EVs, there will be progress in a two-way flow and complex flows of electricity.

- **Microgrids**

→ Because of the widespread use of distributed power sources, such as solar power, rechargeable batteries, and EVs, many microgrids will be built.

- **Net Zero factories**

→ Energy saving and the use of carbon-free power sources will be accelerated at manufacturing sites.

- **VPP\*/Demand response**

→ Aggregators for integrating and controlling distributed power sources and demand will emerge.

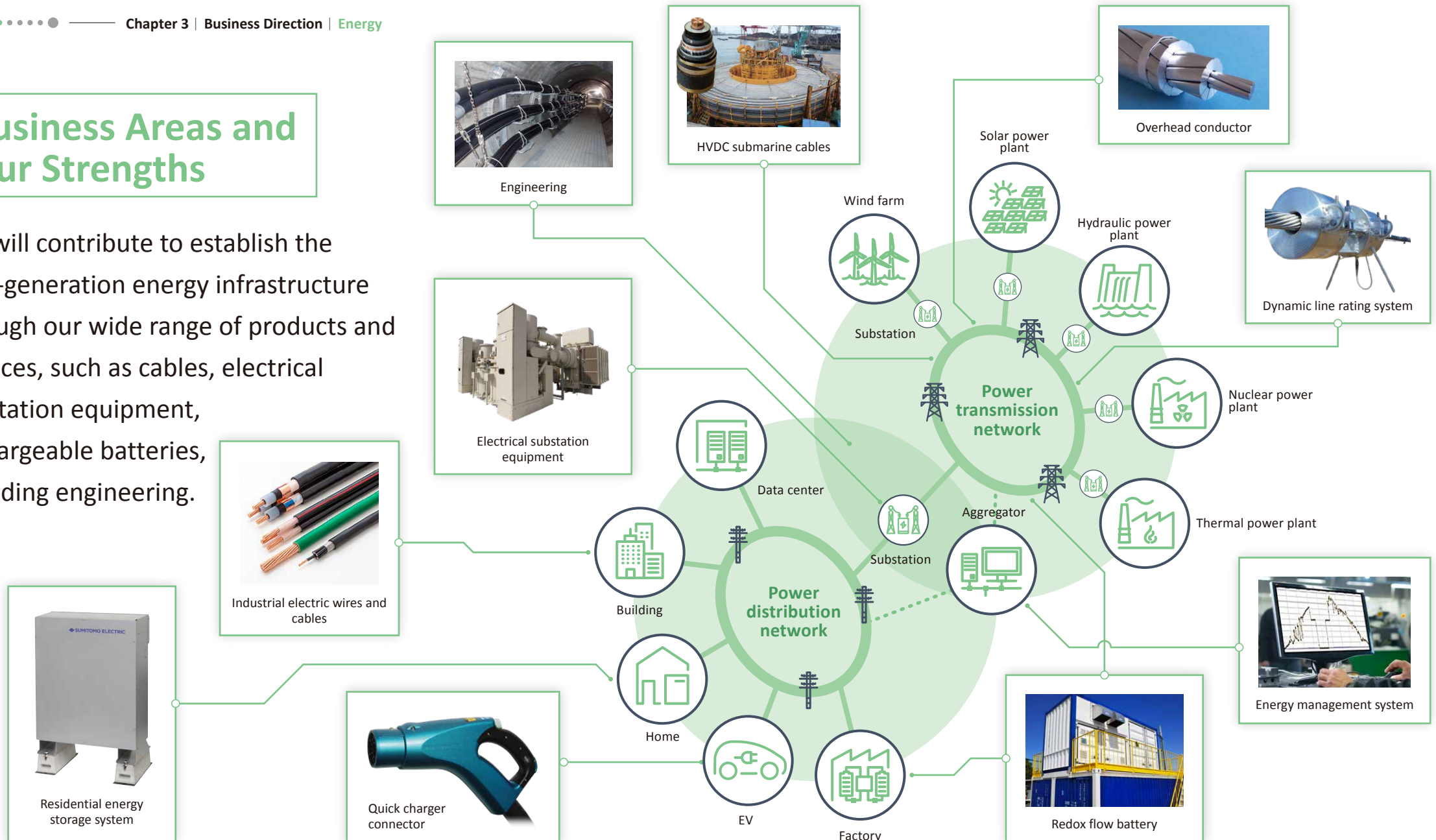
\*VPP: Virtual power plant

The owner of a distributed power source or a third party controls the distributed power source, thereby providing a function equivalent to that of a power station.



## Business Areas and Our Strengths

We will contribute to establish the next-generation energy infrastructure through our wide range of products and services, such as cables, electrical substation equipment, rechargeable batteries, including engineering.



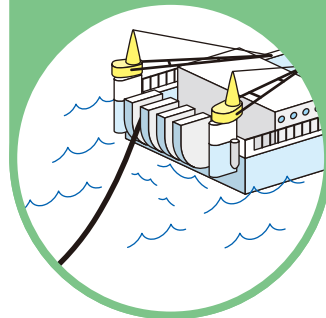
## Challenges toward 2030

We will further improve our power cable technology and take on challenges to reinforce power lines on a global basis, and to present solutions for addressing various power users' needs.

Interconnector in Europe

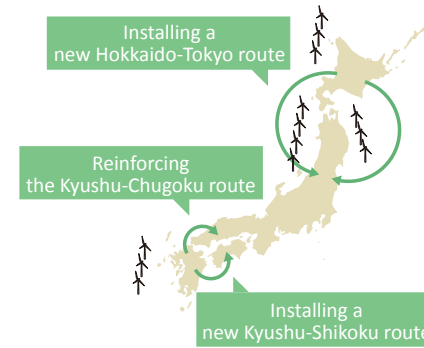


Excellent engineering credentials



## Large-capacity, low-loss power transmission system

Utilizing our power cable technology, we will realize wide-area power interchange and efficient direct-current transmission.



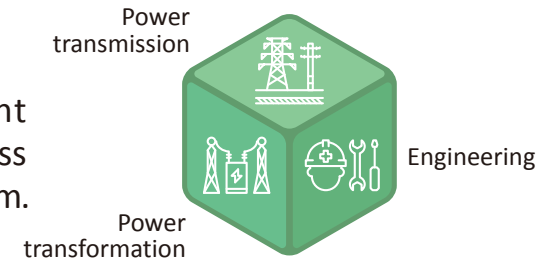
## Development of unique in-house insulation material

- Excellent DC properties
- Eco-friendly material
- High performance under high temperature operation
- Ability under polarity reversal operation

## System connection necessary for large-scale wind farm

SEG will work together to present solutions, thereby contributing to mass deployment of renewable energy system.

### SEG synergies



### Dynamic cable system



## Diversification of power supply and demand

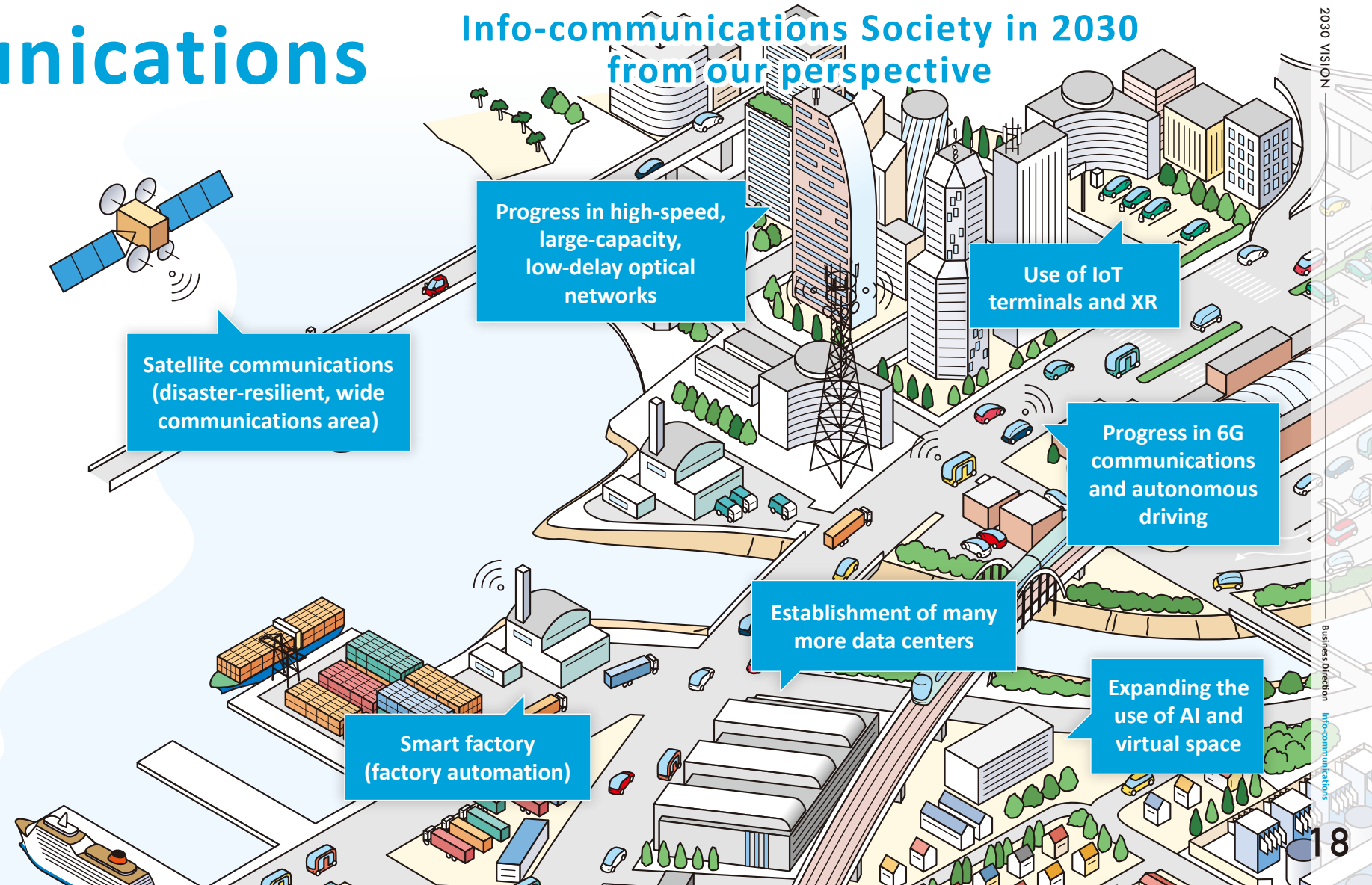
To address the diversification of power supply and demand resulting from the introduction of distributed power sources, we will present solutions by our integrated technologies that we have acquired through operations in the fields of energy, info-communications and mobility.

- AI/IoT for adjusting the supply-demand balance and voltage fluctuations
- SEG's overall strength covering area from materials to equipment systems



# Info-communications

Based on the requirement for further progress in high-speed, large-capacity data communications, the wireless and optical networks will be expanded and many more data centers will be established, which will increase the demand for reducing power consumption.



## Future Business Environment

### Progress in high-speed, large-capacity communications while stabilizing quality

#### • From 5G to 6G

→ The maximum data speed will be up to 100 times faster than the current one.

#### • Progress in All Photonics Network

→ There will be progress in optical networking of data centers/equipment toward the reduction of power consumption.

#### • Establishment of many more compact data centers

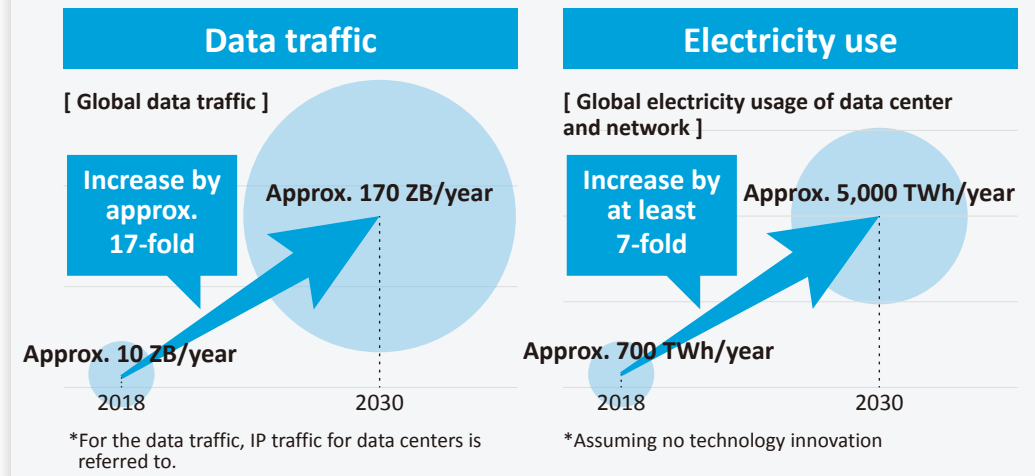
→ Many more compact data centers will be established to reduce the network load.

#### • Expansion into non-terrestrial areas

→ Global networks will expand by using submarine areas and artificial satellites.

### Increase in power consumption due to an increase in global data traffic

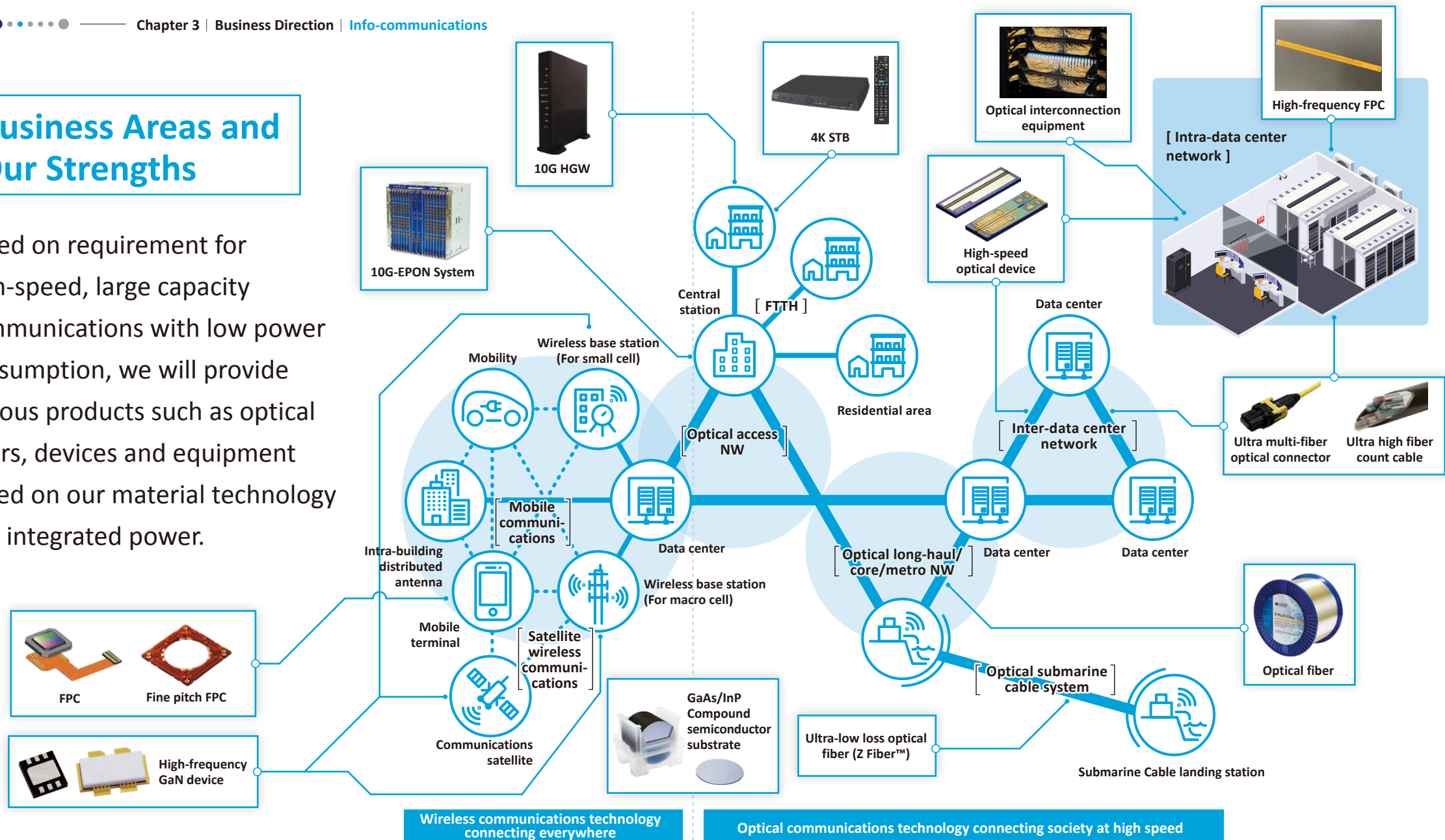
An increase in the data traffic will entail an increase in power consumption, leading to a growth in the need to reduce power consumption.



Source: Impact of Progress of Information Society on Energy Consumption Vol. 3 (February 2021) and Vol. 4 (February 2022), Center for Low Carbon Society Strategy, Japan Science and Technology Agency

## Business Areas and Our Strengths

Based on requirement for high-speed, large capacity communications with low power consumption, we will provide various products such as optical fibers, devices and equipment based on our material technology and integrated power.



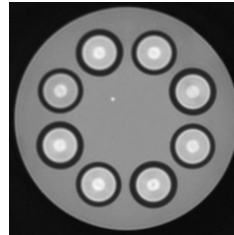
## Challenges Toward 2030

We will take on challenges to develop innovative materials, devices and equipment to present diverse solutions to facilitate progress in large-capacity optical communications, low power consumption, and evolution from 5G to 6G.

### Large-capacity optical communications

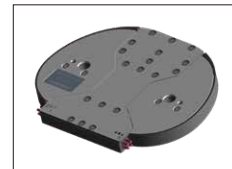
#### Multi-core optical fiber and its application

##### ▶ Multi-core optical fiber



- Small footprint
- Lower environment load
- Advanced encryption transmission

##### ▶ Multi-core fiber application for submarine NW



Highly efficient optical fiber amplifier



Fusion splicer

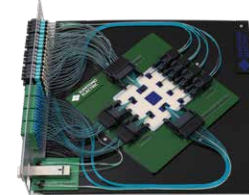
##### ▶ Application to Data Center Solutions

High fiber/core count cable & connector, High density connectivity product. etc

### Low power consumption

#### Integration of optics and electronics toward realizing All Photonics Network centered on data centers to connect all society as business and households

##### ▶ Photonics-Electronics Convergence Technology : Interconnection



- Reduction in power consumption through a shift from electric wiring to optical interconnection (by 20% to 30%)

##### Co-packaged-optics\* (CPO)

\*Mounting technology for packaging both an optical module and electrical switching IC on a single substrate

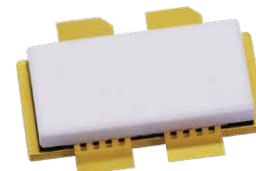
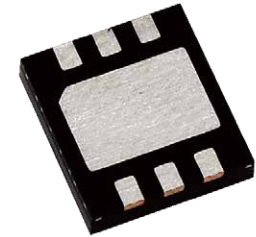
##### ▶ Photonics-Electronics Convergence Technology : Devices integration

Higher-speed/efficiency laser diode and silicon photonics integration. All Photonics Network (APN) Gateway System to Extra-network (equipped with orchestrator-linked software)

### Large-capacity wireless communications: from 5G to 6G

#### Technology for realizing low power consumption, large-capacity communications and wide-area coverage

##### ▶ Circuit integration of GaN devices: Adaptable to fixed base stations/aerial base stations/satellite communications



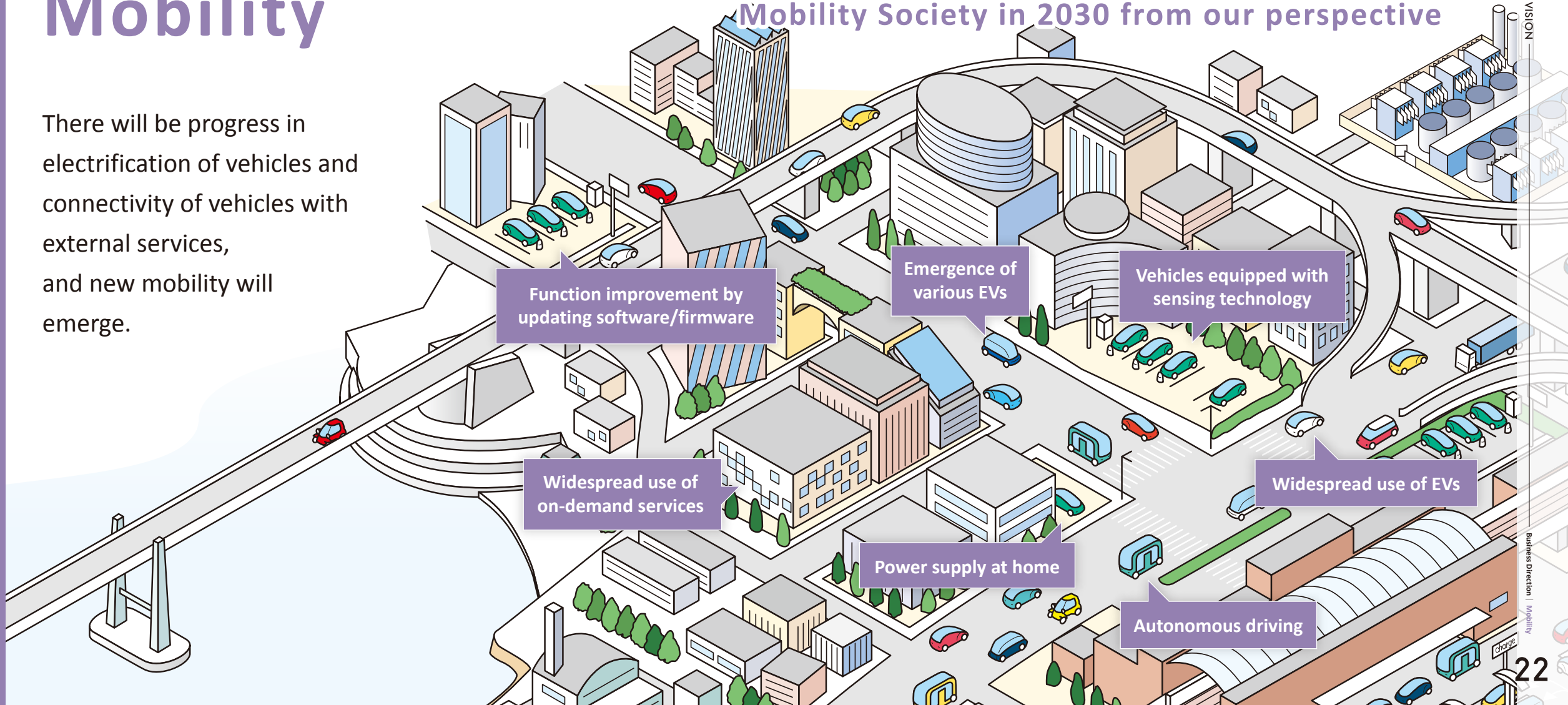
##### ▶ Radio over fiber module for distributed antennas



# Mobility

There will be progress in electrification of vehicles and connectivity of vehicles with external services, and new mobility will emerge.

## Mobility Society in 2030 from our perspective



## Future Business Environment

### Progress in electronic control and emergence of new mobility

There will be progress in the electrification of automobiles, and efforts for the next-generation mobility system will be accelerated.

- **Electrification**

→ In 2030, the number of ICE vehicles will decrease, and various EVs, including HEVs and PHEVs, will form the majority of new vehicle sales.

- **Autonomous driving**

→ In the 2030s, the use of vehicle models with autonomous driving capabilities at level 3 or higher will be popular.

- **New mobility**

→ Various forms of mobility will emerge, such as ultra-compact mobility and flying automobiles.

### Expansion of the link with external services (connected mobility)

There will be expansion in mobility services such as MaaS, and infrastructure linkage to connect automobiles and services will be accelerated.

- **Edge**

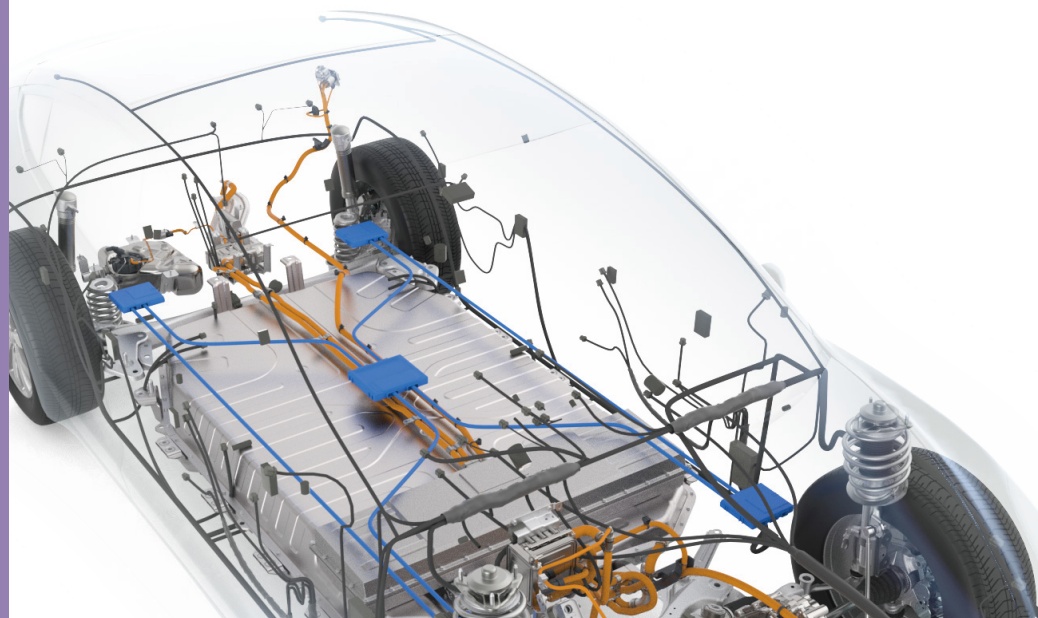
→ There will be progress in informatization of vehicles as an edge in such aspects as safety, maintenance and entertainment.

- **Cloud**

→ There will be expansion of new urban infrastructure and on-demand services. It will be more important to ensure an edge-cloud link.

## Business Areas and Our Strengths

Centering our operations on wiring harnesses, we will present new value by leveraging our excellent global manufacturing quality, high-level technological engineers and skilled workers.



Our technology innovation

Elemental technology	Material/Plating/Analysis technology
Design technology	Design in anticipating customer needs
Manufacturing technology	Automation/Environmentally friendly efforts, and global standardization

### Evolution of wiring harnesses and innovation of manufacturing

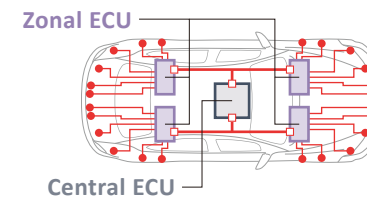
Reduction of weight, size and space

Aluminum harness



Advancement of in-vehicle network

Zonal ECU and expansion ECU



Modularization

Modularization of ECU/cable



Present a higher value to address needs for the diversification and informatization of power trains and equipment – accomplish innovation with our connecting technologies as a partner that can realize connectivity

Strengths

Excellent global manufacturing quality

High-level technological engineers and skilled workers



## Challenges Toward 2030

SEG will continue to evolve our existing products including wiring harnesses, and also we will challenge to contribute to the progress of electrification and high-speed communications of vehicles including architectural innovation, utilizing our technologies in various fields, such as energy and info-communications.

	Electrification	Existing products	High-speed communications
<b>Wiring harness</b>	<ul style="list-style-type: none"> <li>High-voltage harness, battery harness</li> <li>Busbar module</li> </ul>	<ul style="list-style-type: none"> <li>Low-voltage harness</li> <li>Aluminum harness</li> </ul>	<ul style="list-style-type: none"> <li>High-speed communications harness</li> <li>Optical harness</li> </ul>
<b>Electric wire</b>	<ul style="list-style-type: none"> <li>High-voltage magnet wire for motor</li> <li>Leads for pouch Li-ion battery</li> <li>Module for interconnection in battery</li> </ul>	<ul style="list-style-type: none"> <li>Magnet wire</li> <li>Metal materials for spark plug electrodes</li> </ul>	<ul style="list-style-type: none"> <li>High-frequency FPC</li> </ul>
<b>Connector/terminal</b>	<ul style="list-style-type: none"> <li>High-current connector</li> <li>High-voltage JB</li> </ul>	<ul style="list-style-type: none"> <li>Connector</li> <li>Junction box (JB)</li> </ul>	<ul style="list-style-type: none"> <li>High-speed communication connector</li> </ul>
<b>ECU, G/W</b>		<ul style="list-style-type: none"> <li>ECU/Gateway (G/W)</li> </ul>	<ul style="list-style-type: none"> <li>Zonal ECU</li> </ul>
<b>Semi-conductor/device</b>	<ul style="list-style-type: none"> <li>SiC power device</li> </ul>		
<b>Functional material</b>	<ul style="list-style-type: none"> <li>Steel cords for EV tires</li> <li>Sinter brazed parts (for E-Axle)</li> <li>Oil pump rotors (for motor cooling)</li> <li>Porous metal</li> </ul>	<ul style="list-style-type: none"> <li>Steel cords</li> <li>Sinter brazed parts (for AT/CVT)</li> <li>Oil pump rotors (for lubrication of engine)</li> <li>Steel wires for springs</li> <li>Engine components</li> </ul>	<ul style="list-style-type: none"> <li>Sintered ZnS lenses</li> </ul>
<b>Resin, Rubber products, Sensor, etc.</b>	<ul style="list-style-type: none"> <li>Cooling hoses</li> <li>Motor mounts</li> <li>High heat insulation material for battery</li> <li>Cross-linked fluororesin</li> </ul>	<ul style="list-style-type: none"> <li>Hose for vehicles</li> <li>Anti-vibration rubber</li> <li>Heat shrink/resistant tubing</li> </ul>	<ul style="list-style-type: none"> <li>Steering touch sensor</li> <li>Driver monitoring system</li> </ul>
<b>Infrastructure Collaboration</b>	<ul style="list-style-type: none"> <li>Charging connector/inlet</li> <li>Rechargeable battery</li> </ul>	<ul style="list-style-type: none"> <li>Traffic control system</li> </ul>	<ul style="list-style-type: none"> <li>Expansion unit</li> </ul>

# High-Performance Products and Materials for three Focusing Fields

Further evolving the material technology that we have developed so far, we will extensively contribute to the development of infrastructure and industries, related to energy, info-communications, and mobility.

## High-precision tools

Supporting various manufacturing businesses with our product lineup for realizing high-precision processing

Precision machining of exotic alloys and hardened steels

(Cutting tools)



High-precision processing of automobiles, semiconductors, etc.

(Grinding wheels)



High-precision wire drawing for automobiles, semiconductors, etc.

(Diamond drawing dies)



## High-strength materials

Supporting society and industry by providing various high-strength materials

Reinforcement for large-scale structures

(PC steel wires)



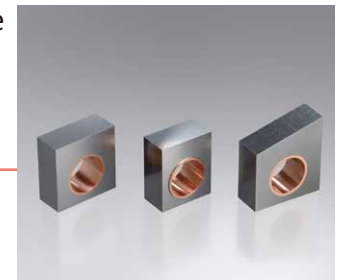
Complex and high-strength structural parts

(Sintered metal components)



Heat-resistance components for nuclear fusion reactors

(Tungsten monoblocks)



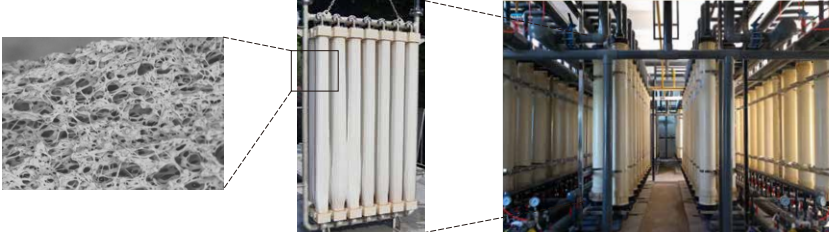
# Contribution to a “Green” Society

We will contribute to the realization of “Green” society by providing excellent products and services, and various activities by leveraging our technology.

## Recycling water resources

Making effective use of water resources by wastewater treatment to prevent environmental pollution, wastewater recycling, and sea water desalinating

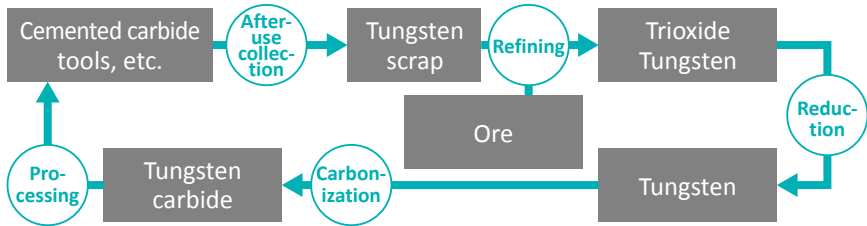
## Water treatment system/equipment using Poreflon™ and new materials



## Effective use of rare metals

Recycling rare metals, such as tungsten, which are finite resources

## Recycling flow of tungsten



## Reduction of CO<sub>2</sub> emissions

Maximizing effort to save energy, Creating energy mainly through solar power as possible, and then, Purchasing energy to cover the short-fall

## SEG's CO<sub>2</sub> emissions reduction targets

- Saving energy**
  - Reducing energy consumption per unit of sales
- Creating energy**
  - Introducing solar power
  - Making the most effective use of the power by leveraging rechargeable batteries
- Purchasing energy**
  - Purchasing renewable energy

The 2030 targets certified by the SBTi

**2018 → 2030**  
 Scope 1+2 Reduction by 30%  
 Scope 3 Reduction by 15%



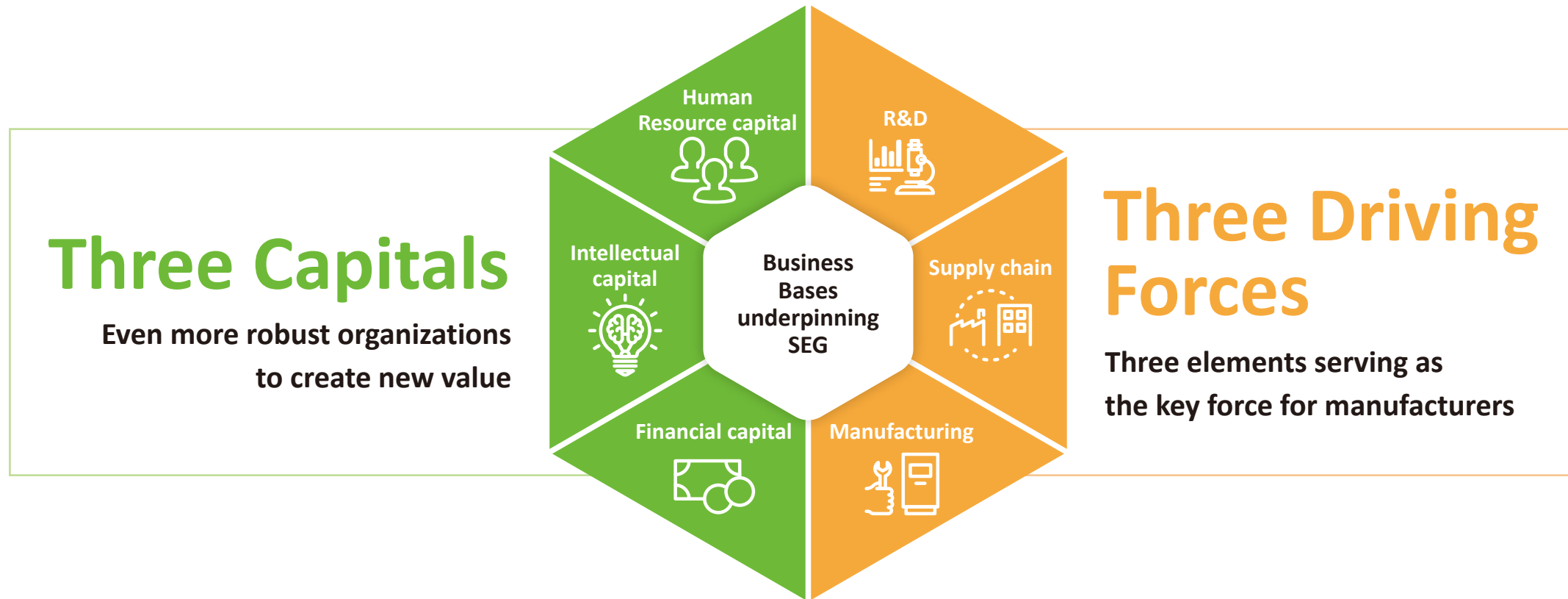
# 4



## Business Bases and Target

- Business Bases
- Three Capitals
- Three Driving Forces
- Target

# Business Bases toward realizing the Vision



To realize our vision in this age of changes, we will continue to develop our organization by enhancing “Human Resource Capital,” “Intellectual Capital,” and “Financial Capital,” as common capitals and reinforcing “R&D,” “Supply Chain,” and “Manufacturing” as driving forces, and will demonstrate our group full synergy.

# Three Capitals

We make our organization even more robust to create new value in the era of changes, by enhancing investment in **“Human Resource capital”** and **“Intellectual capital,”** and increasing our **“Financial capital”** as a fund for growth and distribution.

\*SEG’s Human Resource Management Policy

## Human Resource capital

Based on the **“Global HRM Policy\*,”** we will develop into a corporate group where all the human resources can make their presence felt, achieve growth, and realize self-improvement, thereby contribute to society.

- Diversity & inclusion
- Nurturing a corporate culture that values growth and challenges
- SEG’s integrated power on a global scale

## Intellectual capital

We will create **“long-term business competitiveness”** by generating intellectual capital from our core technology, and managing and utilizing it on a global basis.

- Intellectual Property(IP) strategy for business competitiveness
- Global IP network
- Contribution to the establishment of global regulations

## Financial capital

We will **“generate cash”** to maximize a fund for growth and distribution, and allocate it for investment and return to stakeholders.

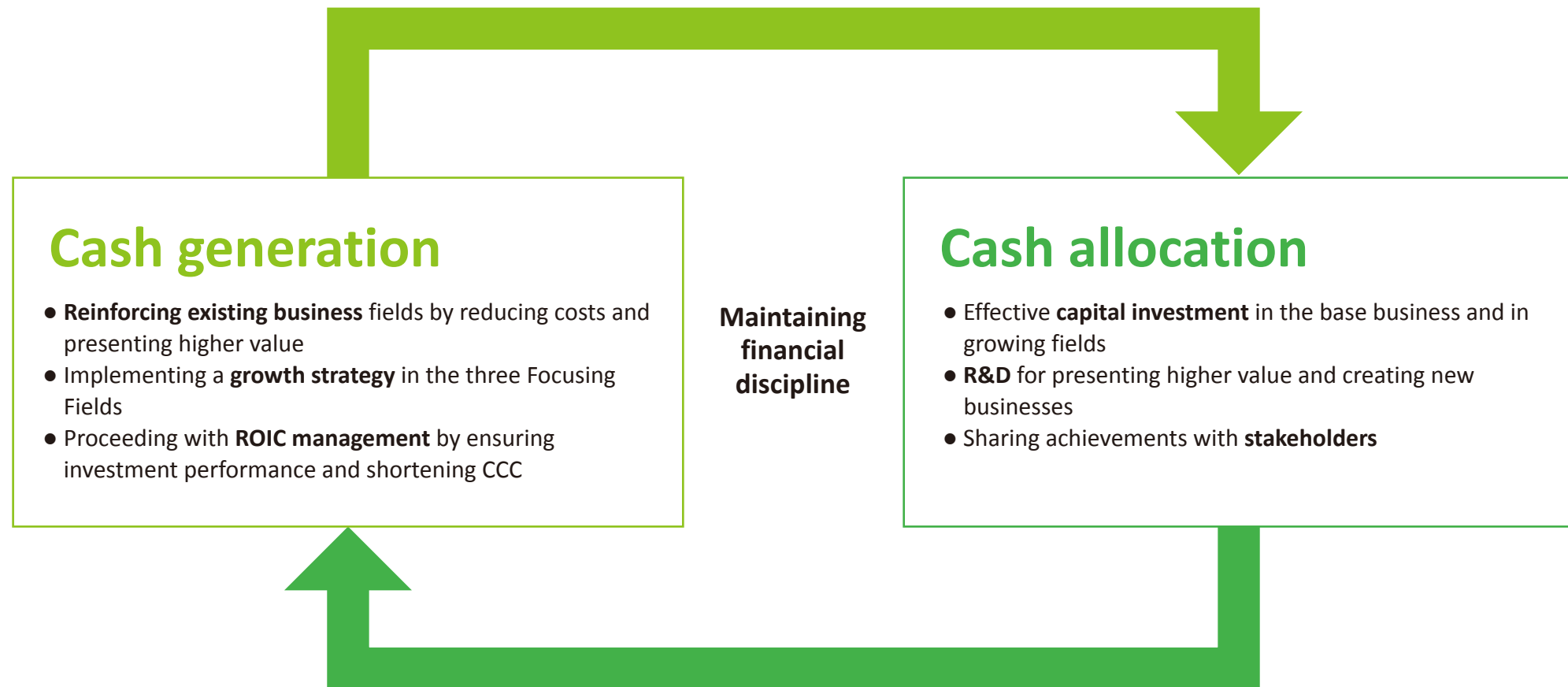
- Reinforcing operation, implementing growth strategy, and ROIC management
- Effective capital investment and R&D investment
- Returning achievements to stakeholders





## Financial capital

Maximizing our cash flow for growth and distribution,  
which will be allocated appropriately







## R&D

We will “invigorate” and “accelerate” R&D to generate favorable results.

- Backcasting from social issues
- More sophisticated and efficient processes
- Open innovation and cooperation with outside entities

## Supply chain

We will promote “Reinforcement of BCP” through a “stable distribution framework resilient to changes.”

- Fair and impartial trade, protection of the environment and human rights, and the BCPs
- Promotion of sales with a focus on presenting solutions
- Production at the most appropriate site and cooperation on a global scale
- Optimizing division of labor among operation sites and transportation means

## Manufacturing

We will make our factories “stronger” so that they can continue to act on changes.

- Saving, creating, and purchasing energy, along with eco-friendly activities
- Zero accidents in all the aspects of employees, materials and equipment
- Autonomous and continuous “maintenance and improvement”
- Vertical launch and simultaneous improvement of lead time and cost

# Three Driving Forces

To make our organization resilient to changes, we will further develop “S/E/Q/C/D/D”\* qualities and reinforce the three driving forces of “R&D,” “Supply chain,” and “Manufacturing,” which serve as the key force especially for manufacturers.

\* (S) Safety / (E) Environment / (Q) Quality / (C) Cost / (D) Delivery / (D) Development

## R&D

# Invigorating and accelerating R&D as the key force for creating various technologies

## Needs-Driven

### Driven from future society's needs

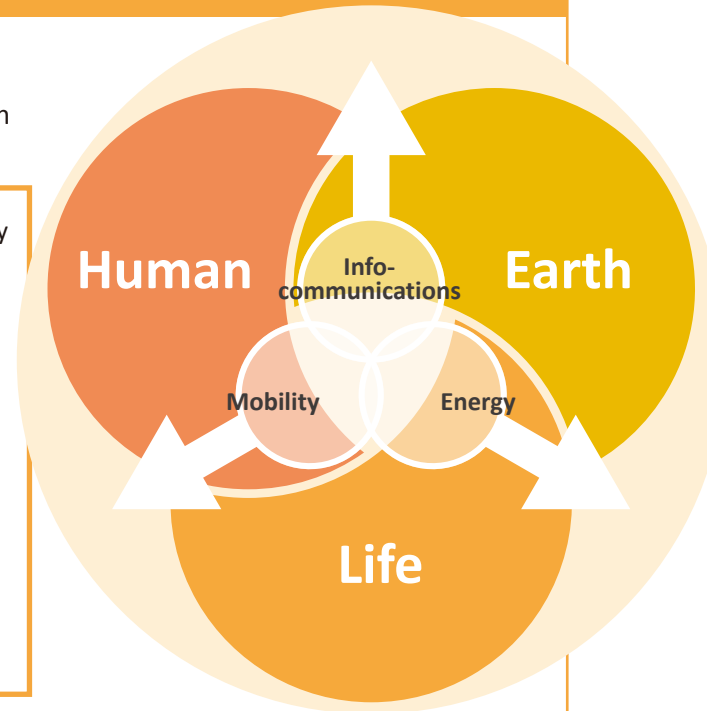
Exploring themes based on backcasting from an ideal society and the social challenges in 2050

#### Earth

- Infrastructure for a hydrogen society
- CO<sub>2</sub> separation and capture
- Application of superconductors
- Recycling of materials
- 3Rs of heat
- New materials replacing metal – and more

#### Human and life

- Use of virtual space
- Quantum network
- Next-generation mobility media
- Mixed reality
- Space communications/power generation and transmission grid
- Human augmentation – and more



## Speedy

### Acceleration of the R&D process

Actively introducing materials informatics (MI), process informatics (PI), etc., thereby accelerating the development of material and processing technologies, which we boast of as our strengths, and enhancing process efficiency in the forms of automation, remote operation, etc.

## International

### Collaboration with overseas partners

- Global cooperation in SEG to share technology, know-how, ideas, etc
- Alliance with overseas companies, academic institutions, etc

# Target

## Toward Enhancing Medium- and Long-Term Corporate Value

Based on our corporate culture, which emphasizes the environment, human resources, and legal compliance, we will simultaneously enhance our growth potential and capital efficiency; thereby striving to develop into a Glorious and Excellent Company.

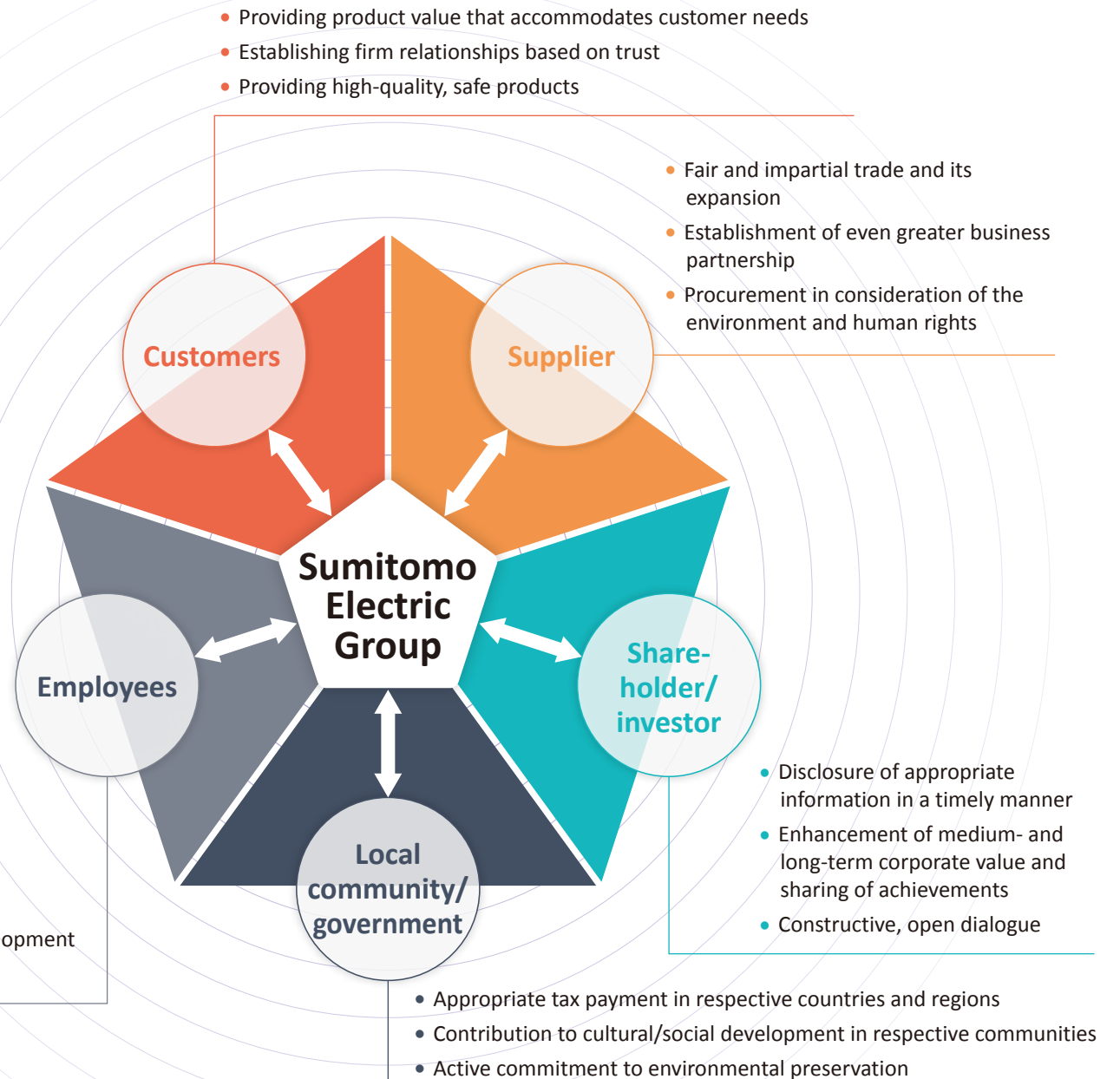
Glorious		
Non-financial	E	<b>Global environment</b> Various efforts as follows: CO <sub>2</sub> emissions reduction 2030 <Scope 1+2> 30%; <Scope 3> 15% (compared to FY 2018) 2050 <Scope 1+2> carbon neutrality
	S	<b>Diversity &amp; inclusion</b> Creation of new values through the integration of diverse perspectives, experiences and technologies
		<b>Engagement</b> Empathy with the creation of corporate value and actual feeling of contribution
	G	<b>Legal compliance</b> Compliance with laws, regulations, and corporate ethics throughout SEG, including its supply chain, on a global basis

Excellent		
Financial	Growth	Consolidated net sales: 5 trillion yen or more 1 trillion yen or more in growth from the Focusing Fields of energy, info-communications, and mobility
	Efficiency	Before-tax ROIC: 10% or higher (Presentation of even higher value and improvement in the profit structure)

# Sharing values with our Stakeholders

We commit to realize “Safe and Comfortable Life on our Green Planet,” and strive to establish a sustainable society. In addition, we will share values and achievements with our stakeholders.

- Respect for human rights, and healthy, safe, secure and comfortable workplace environment
- Diversity & inclusion, and sustainable growth and development
- Sharing of purpose/sense of fulfillment





**We will try to make it happen with technology to realize  
“SAFE AND COMFORTABLE LIFE ON OUR GREEN PLANET”**







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