



**Earnings Announcement for the First Half of FY3/21**  
**November 19, 2020**



# **Financial Summary**

## **For the First Half of FY3/21**



# Financial Highlights (consolidated)

- First half sales and earnings increased because of the completion of large projects carried over from FY3/20 and an improvement in profitability.
- The FY3/21 sales and earnings forecasts have been increased because the impact of COVID-19 has been smaller than expected.

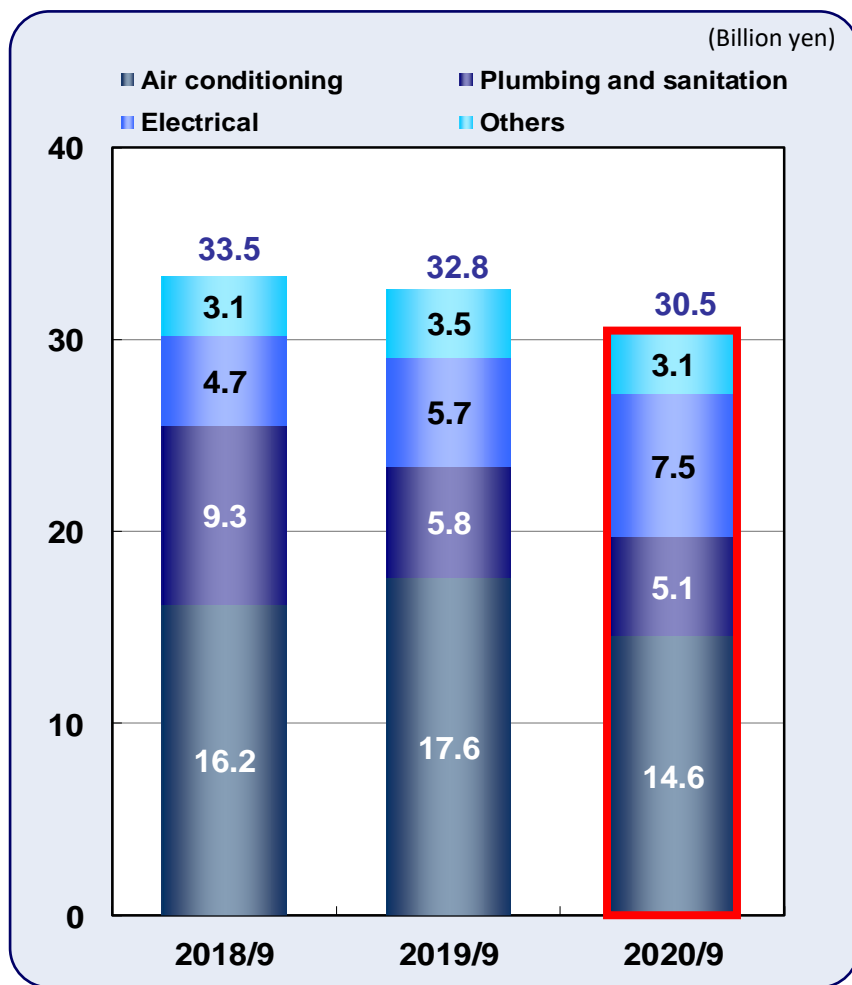
(Billion yen)

	2018/9 Actual	2019/9 Actual	2020/9 Actual	YoY	YoY (%)	2020/3 Actual	2021/3 Initial plan (Announced May 22, 2020)	2021/3 Revised plan (Announced Nov. 6, 2020)	Vs. Initial plan
Orders received	33.5	32.8	<b>30.5</b>	<b>-2.3</b>	-7.1%	78.4	62.0	<b>72.0</b>	<b>+10.0</b>
Net sales	26.9	28.5	<b>31.8</b>	<b>+3.3</b>	+11.6%	75.8	68.0	<b>74.0</b>	<b>+6.0</b>
Operating profit	-1.1	-0.3	<b>1.1</b>	<b>+1.4</b>	-	3.6	2.0	<b>3.0</b>	<b>+1.0</b>
Ordinary profit	-1.0	-0.1	<b>1.5</b>	<b>+1.7</b>	-	4.2	2.4	<b>3.5</b>	<b>+1.1</b>
Profit attributable to owners of parent	-0.8	-0.1	<b>1.0</b>	<b>+1.1</b>	-	3.5	1.5	<b>2.0</b>	<b>+0.5</b>

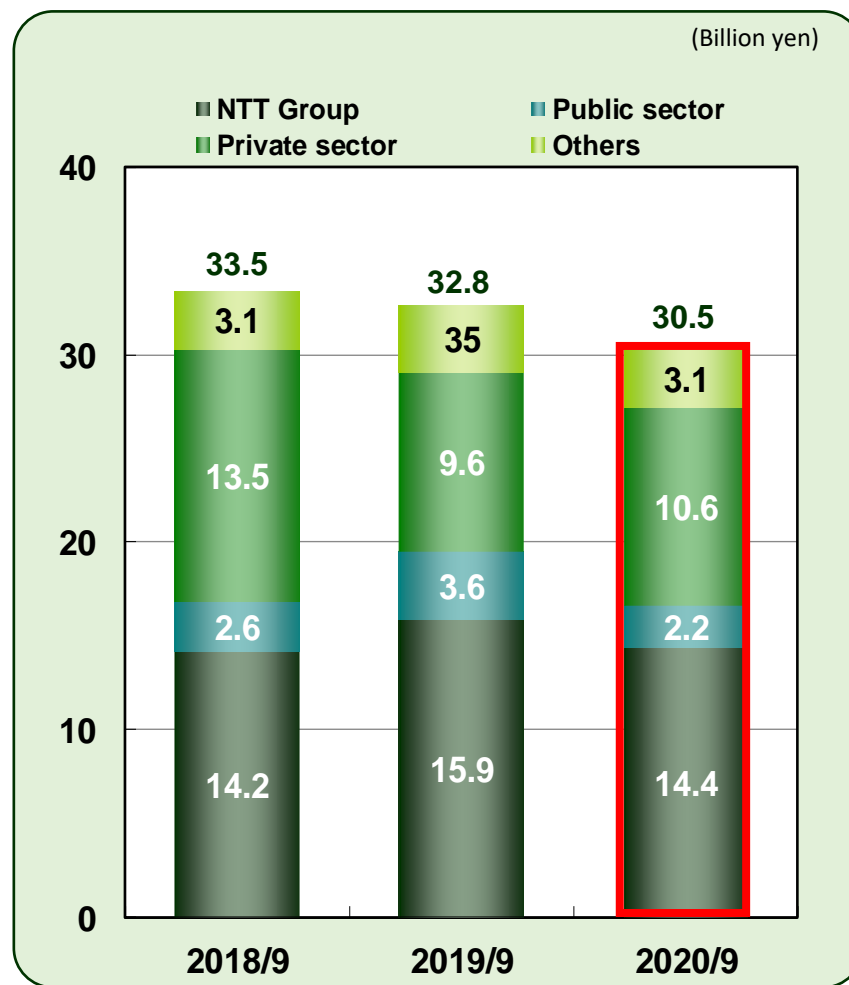
# Orders Received by Category & by Customer (consolidated)

- Orders received remained above ¥30 billion even during the COVID-19 crisis.
- NTT Group orders were steady in part due to increasing 5G expenditures.

## By category



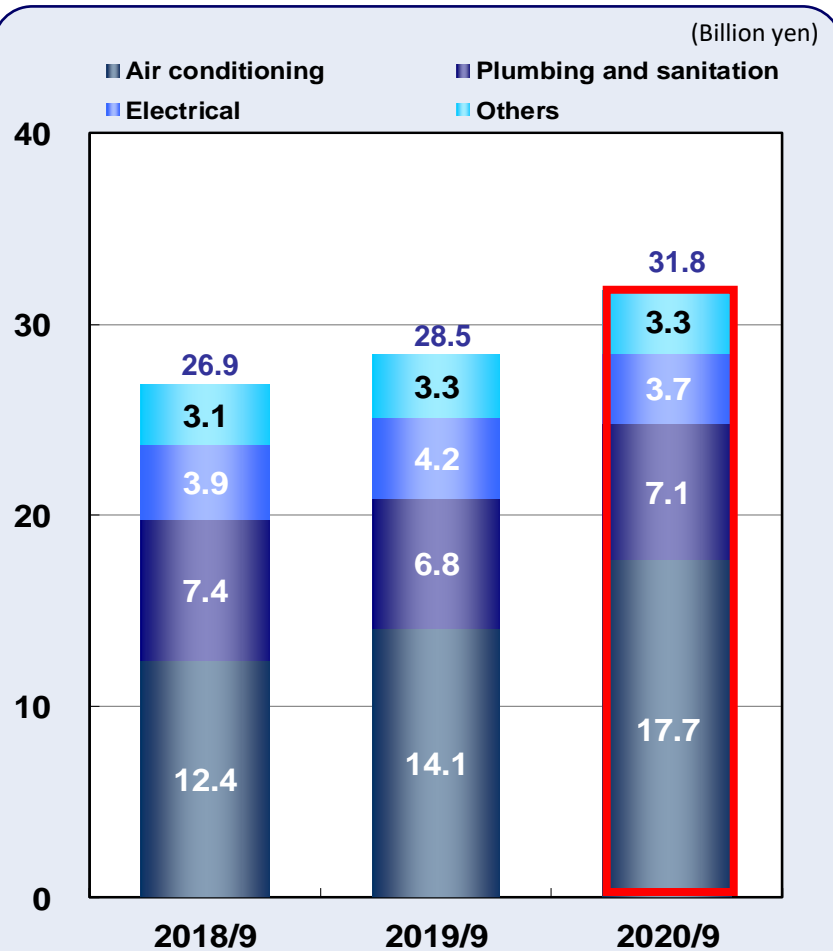
## By customer



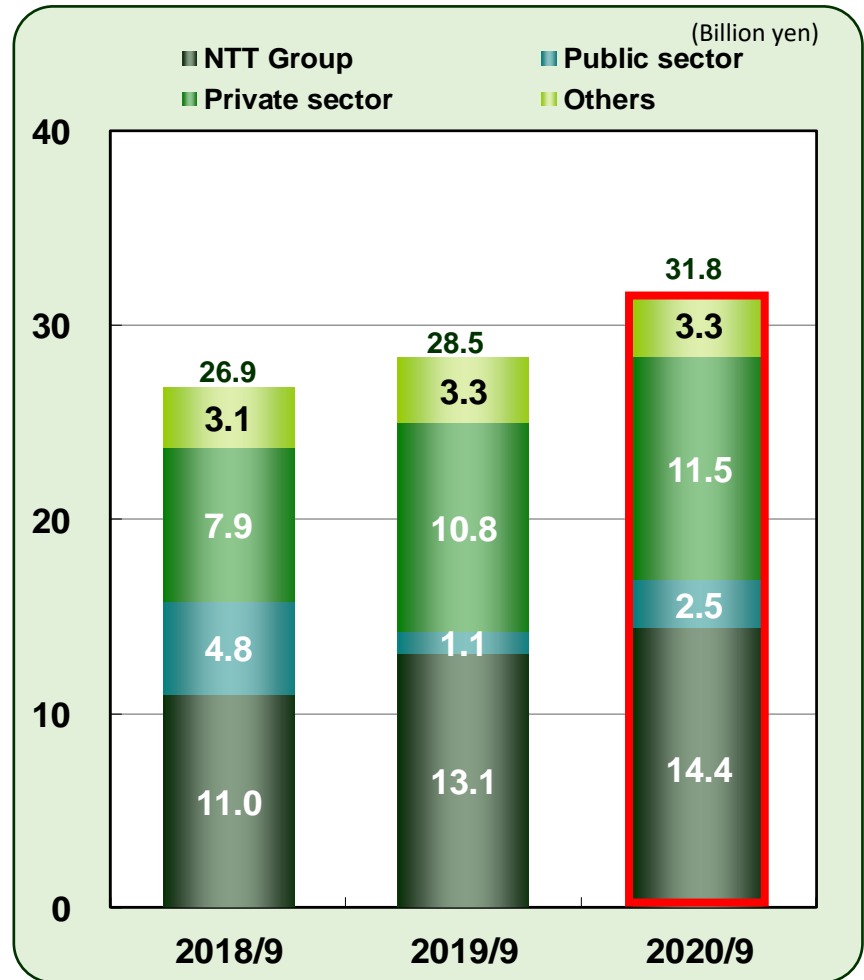
# Sales by Category & by Customer (consolidated)

■ The year-to-year growth of first half sales continued in the current fiscal year.

## By category



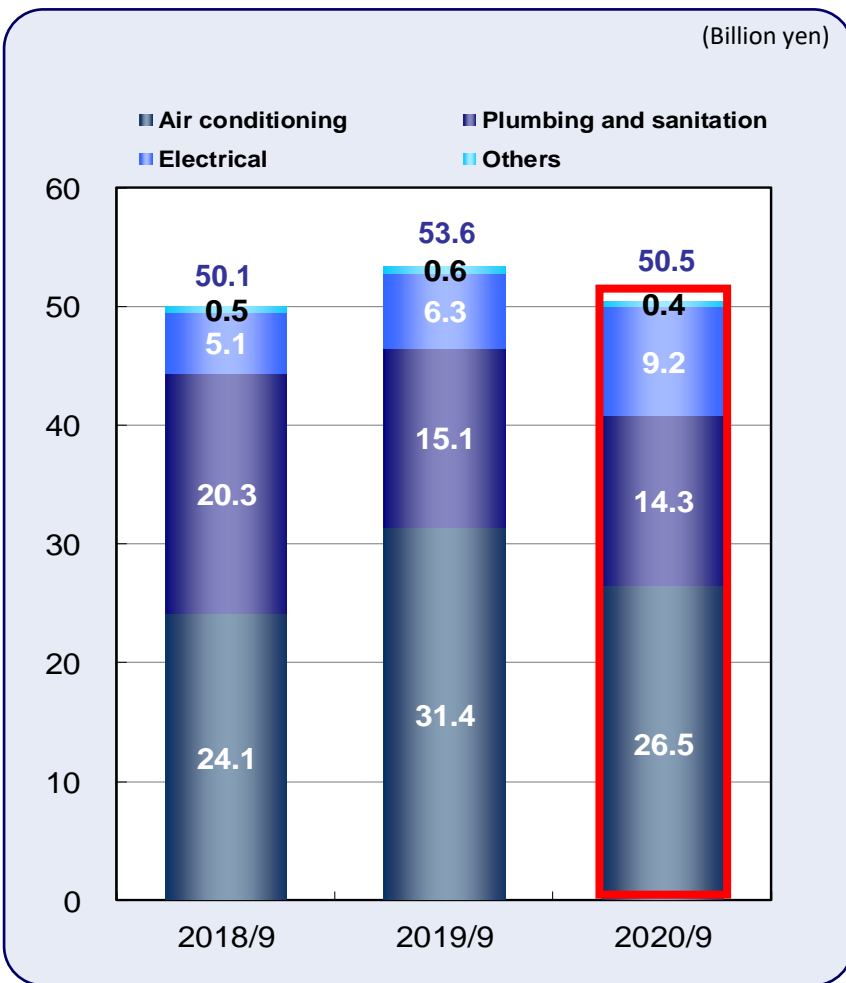
## By customer



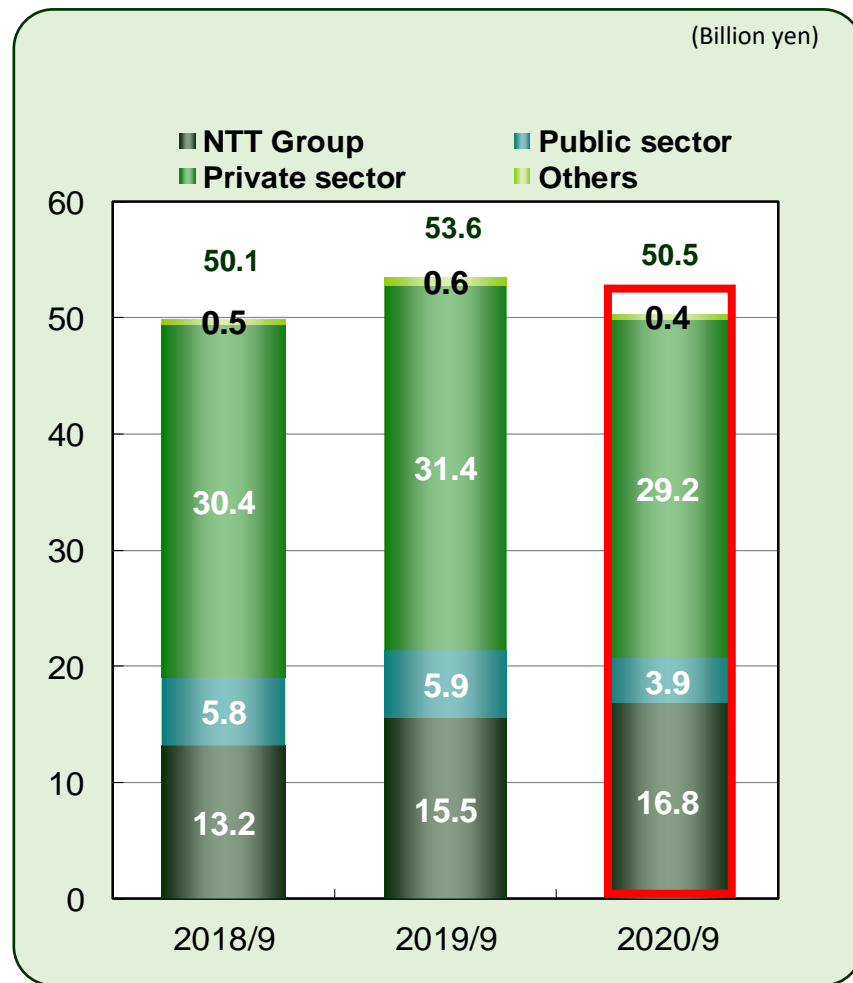
# Order Backlog by Category & by Customer (consolidated)

■ The volume of ongoing projects remained above ¥50 billion in part due to increasing 5G expenditures of the NTT Group.

## By category



## By customer



# Summary Income Statements (consolidated)

- The gross profit margin increased

(Billion yen)

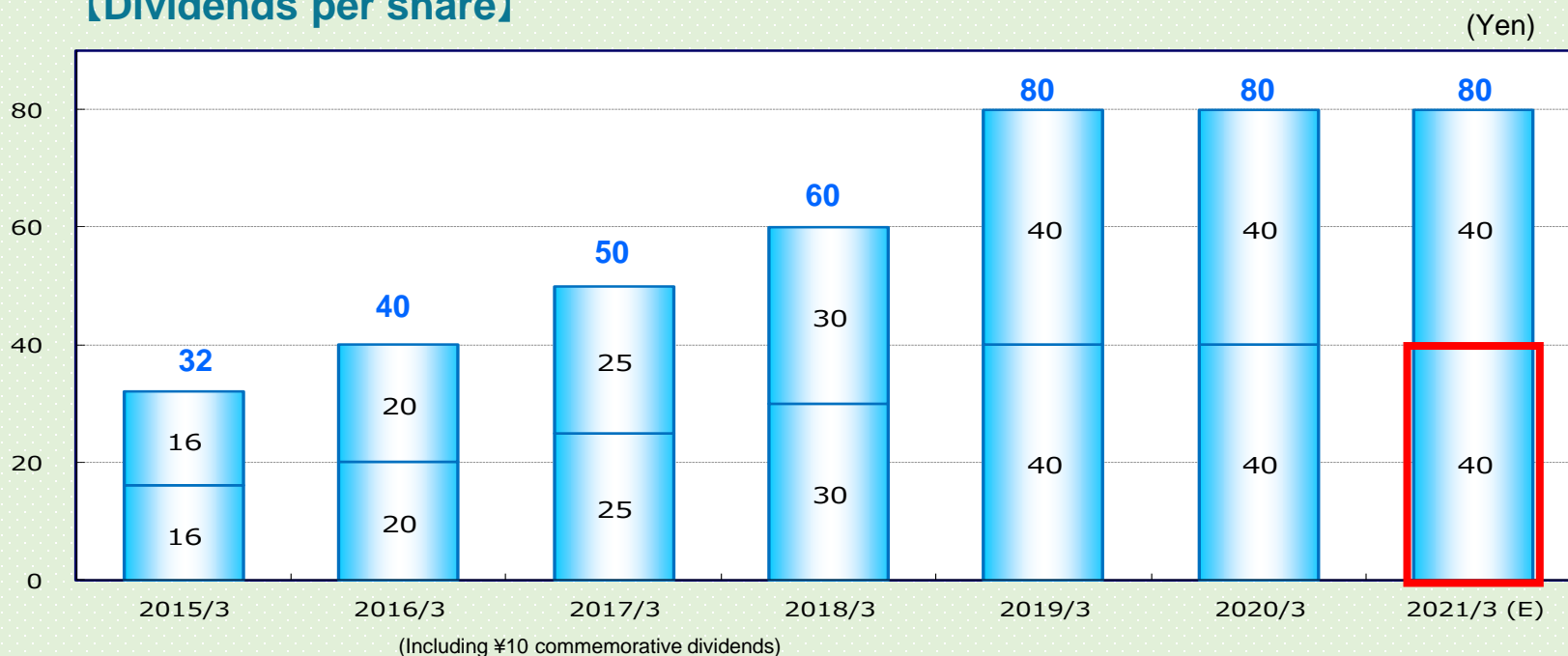
	2018/9 (A)	2019/9 (A)	2020/9 (A)	YoY	YoY (%)
Net sales	26.9	28.5	<b>31.8</b>	<b>+3.3</b>	<b>+11.6%</b>
Cost of sales	24.2	25.0	<b>26.9</b>	<b>+1.9</b>	<b>+7.6%</b>
Gross profit	2.6	3.4	<b>4.9</b>	<b>+1.4</b>	<b>+40.4%</b>
Gross profit margin	10.0%	12.2%	<b>15.4%</b>	<b>+3.2</b>	—
SG&A expenses	3.8	3.8	<b>3.7</b>	<b>0.0</b>	<b>-1.8%</b>
Operating profit (loss)	(1.1)	(0.3)	<b>1.1</b>	<b>+1.4</b>	—
Non-operating income	0.0	0.1	<b>0.4</b>	<b>+0.2</b>	<b>+142.2%</b>
Ordinary profit (loss)	(1.0)	(0.1)	<b>1.5</b>	<b>+1.7</b>	—
Extraordinary income	—	0.0	—	<b>0.0</b>	—
Income taxes	(0.2)	0.0	<b>0.5</b>	<b>+0.4</b>	—
Profit (loss) attributable to owners of parent	(0.8)	(0.1)	<b>1.0</b>	<b>+1.1</b>	—

## Dividends

### 【FY3/2021】

- Total dividend is expected to be ¥80 per share as planned
- The interim dividend was ¥40

### 【Dividends per share】







# **Achievement of the First Half**



■ CO<sub>2</sub> Reduction Projects Using Alliances (P8)

■ Use of ICT and Digital Technologies (P9)

■ A Stronger Jobsite Oversight System (P10)

■ Jobsite Worker Health and Safety Management (P11)

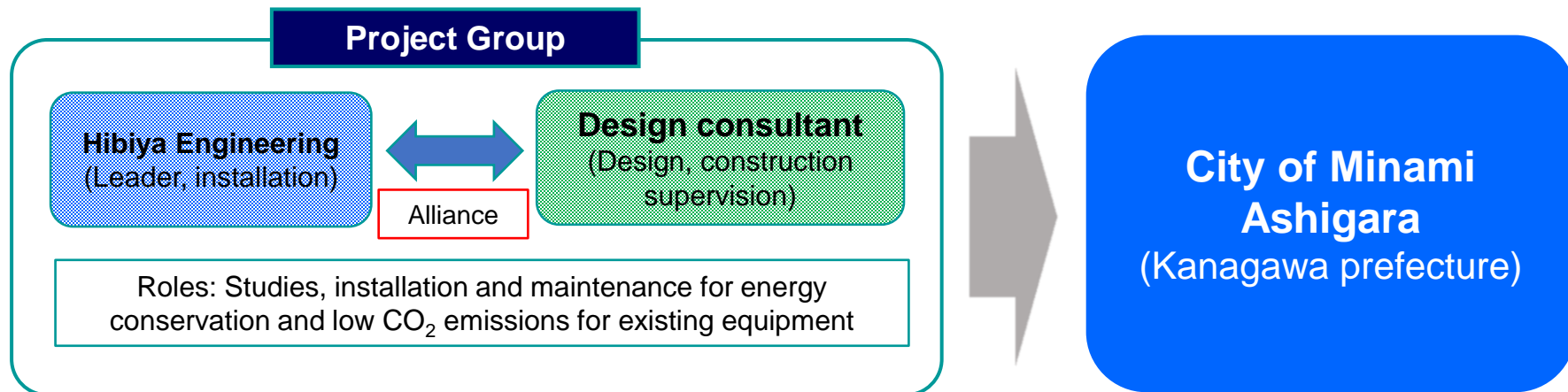
■ Expansion of “Smart WORK” Working Style Reforms (P12)

# CO<sub>2</sub> Reduction Projects Using Alliances

## Project to upgrade carbon management (Project No. 2)

Goal: Lower 2030 greenhouse gas emissions by 40.2% vs. 2013 emissions

Actions: Install advanced energy conservation systems that serve as a model for others



### Use of experience at prior projects

#### Nagano prefectural gov't buildings

CO<sub>2</sub> emission reduction using a bulk lease to install LED lights

Alliance partner:  
Leasing company

See page 31

#### Manazuru Information Center

Installation of self-sufficient, dispersed energy equipment

Alliance partner:  
Design consultant

See page 32

#### Sango-cho, Nara prefecture

Carbon management reinforcement program

Alliance partner:  
Design consultant

See page 33

## Established the Digital Transformation (DX) Promotion Department

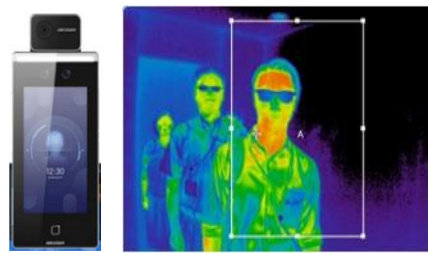
**Goals**

- 1) Participation in “smart” projects of NTT Group and other companies
- 2) Acquire expertise by identifying and confirming “smart” products and technologies
- 3) Stronger alliances with companies outside the Hibiya Engineering Group

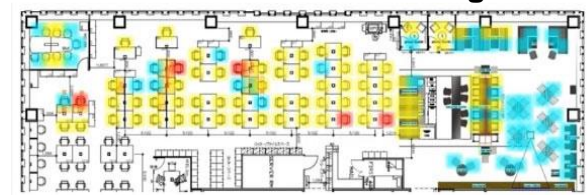
**More value for customers and growth of added-value business activities**

**Started smart technology demonstrations by installing sensors at the Tokyo Head Office**

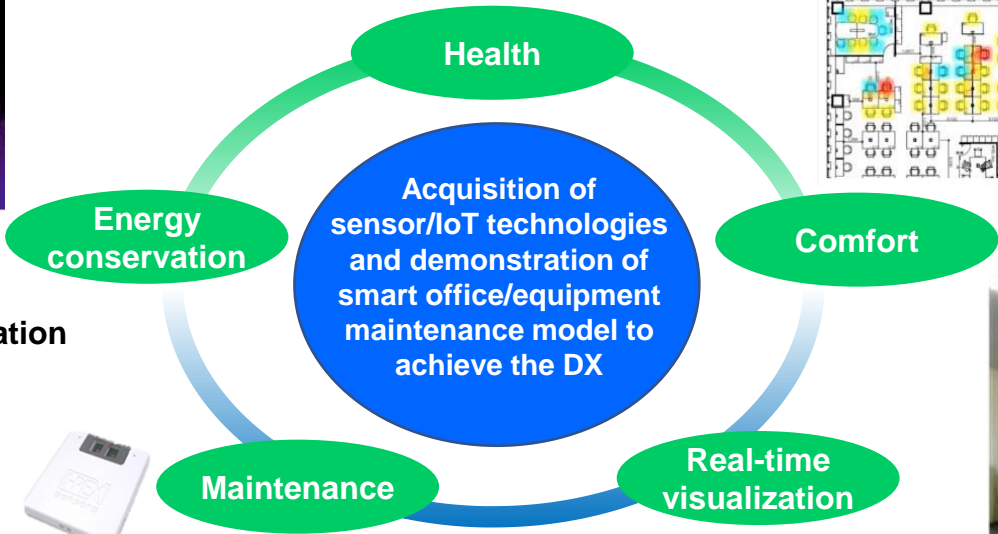
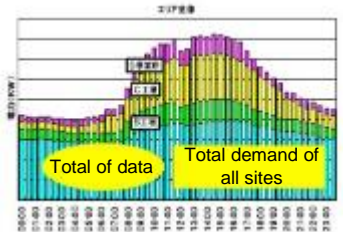
Thermal imaging cameras for COVID-19/flu detection



Verification of multi-function sensors, interior environment monitoring



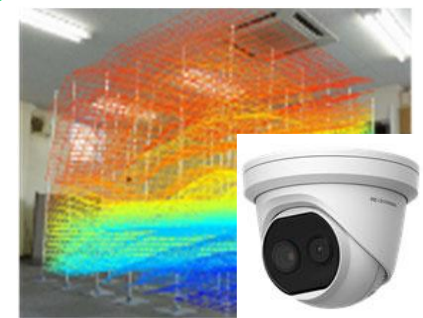
Electricity monitoring for confirming energy conservation



Verification of problem detection system



Temperature control environment visualization and optimization



# A Stronger Jobsite Oversight System

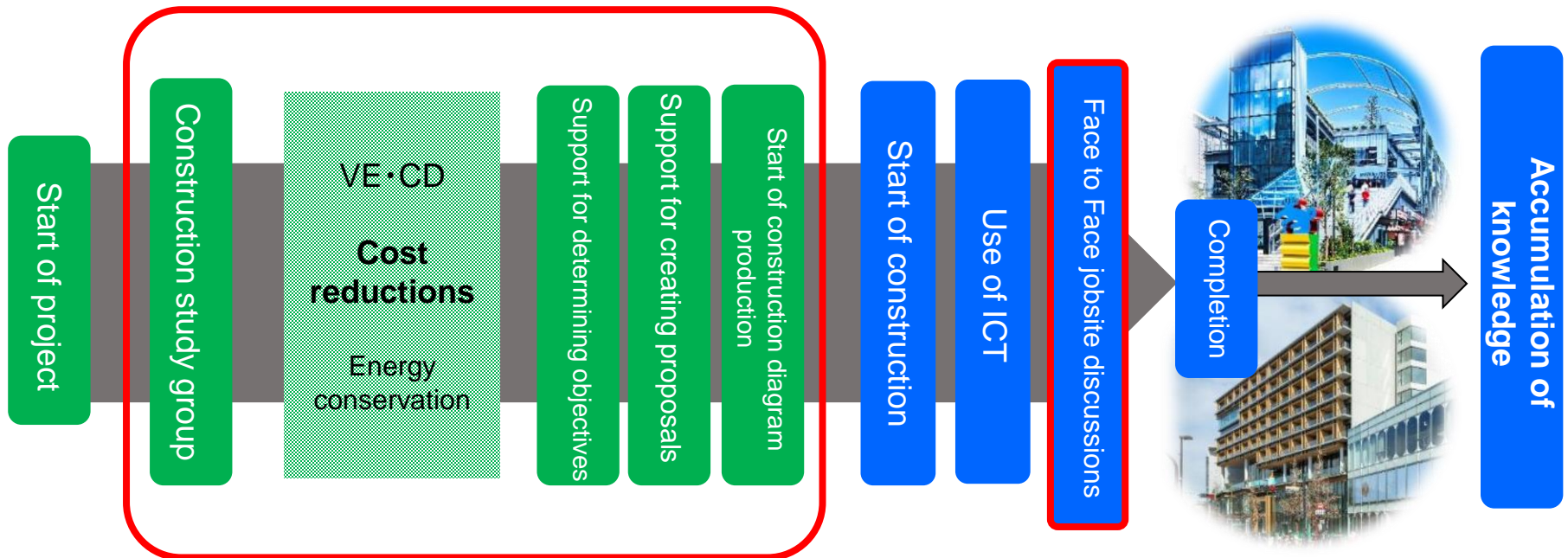
## The One Team Project and Face to Face Project

### One Team Project

Establishment of a team encompassing all tasks to support construction operations from the very first stage; aims for cost reductions and other benefits

### Face to Face Project

Supervisors with extensive knowledge of the construction project visit the jobsite to strengthen communications and reduce the need to redo jobs and other risks



## Testing of the Work Mate vital sign sensor of Ubiteq, Inc.

- A health management tool to prevent heatstroke and other problems
- Safety management: Worker location, detection of falls, emergency notification

### Health status

Detects the physical burden, which can change when busy

Detects dangerous situations  
Allows quick responses

### Fatigue level

Detects accumulated fatigue due to heat or other causes

### Mental burden

Detects the mental burden due to stress or other causes

Sends and receives alarms and messages

### Location data

Uses location data to detect potentially dangerous situations

Goal is to start nationwide use in FY3/22

# Expansion of “Smart WORK” Working Style Reforms

Higher productivity by using iPads, apps and other labor-saving tools

## ▶ Working style reforms



Telework



Use of internet for case study announcements

All employees received iPads in 2017

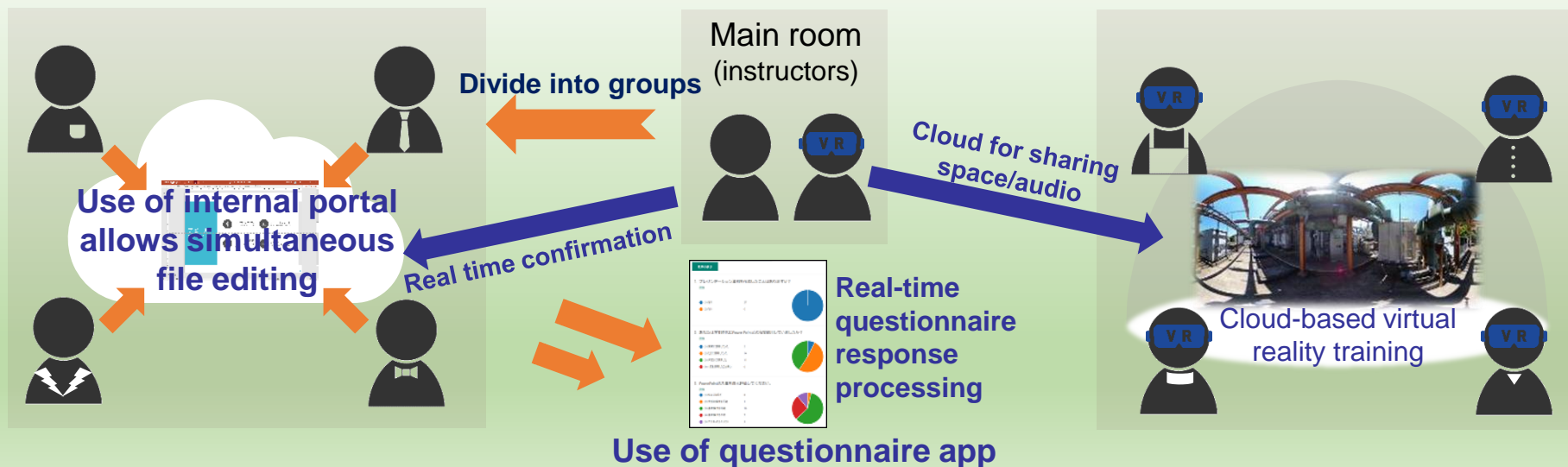


iPhones and virtual desktops for all employees in 2018



Use of telework, online meetings, etc. with no difficulties

## ▶ Internal training program using meeting and questionnaire apps





# **Seventh Medium-term Management Plan**

April 2020 - March 2023





01

Fundamental Goal

“Establish and reinforce corporate reforms”  
for the stable and long-term continuation and  
advancement of business operations

02

Core Strategies

Accomplishments

Invest in human  
resources and ICT  
to change how  
people work

- ◆ Progress with recruiting and training people and with diversity
- ◆ Improvement involving work-life balance
- ◆ Higher business process efficiency by establishing an ICT environment and using the cloud

More advanced life  
cycle total solutions

- ◆ More renovation projects by upgrading proposals for existing facilities
- ◆ Participation in energy, CO<sub>2</sub> reduction and smart community projects
- ◆ Stronger frameworks for jobsite oversight and follow-up after completion

03

Governance

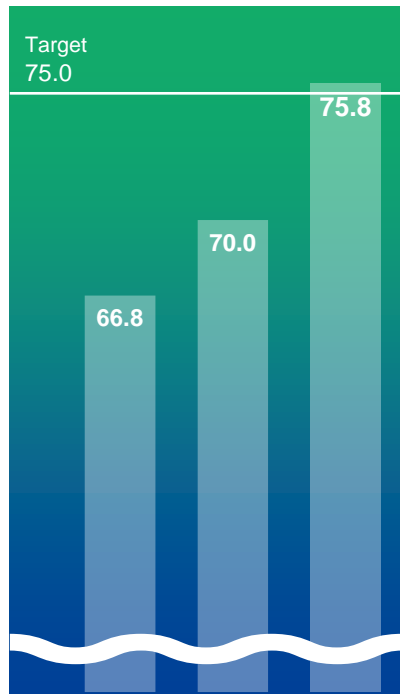
- ◆ A more powerful corporate governance structure
- ◆ A new incentive plan for directors and executive officers

## Performance

- Mostly accomplished the financial goals of the Sixth Medium-term Management Plan

### Net sales

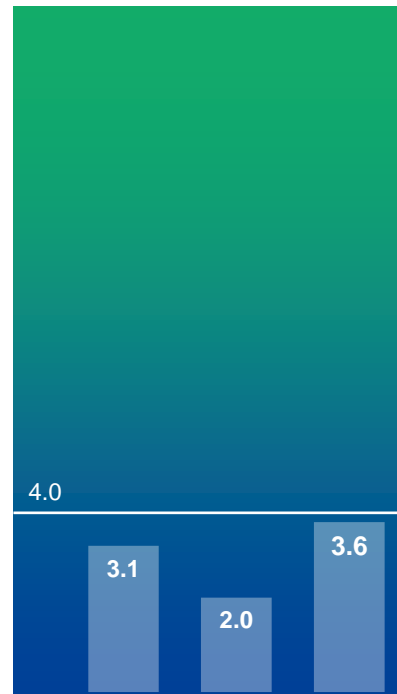
[Billion yen]



2018.3 2019.3 2020.3

### Operating profit

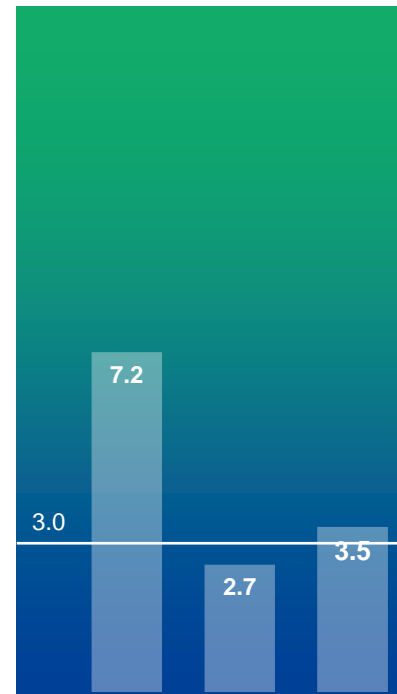
[Billion yen]



2018.3 2019.3 2020.3

### Profit attributable to owners of parent

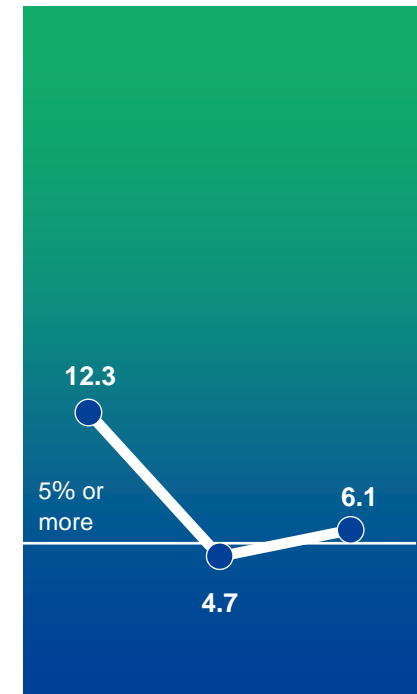
[Billion yen]



2018.3 2019.3 2020.3

### ROE

[%]



2018.3 2019.3 2020.3

**Uncertainty continues due to the need to assume COVID-19 will continue to affect the economy for the foreseeable future. However, the impact of this pandemic is small, other than in some sectors of the building construction and equipment categories.**

- Companies have stopped placing new orders in some sectors (hotels, stores and others), but the demand for new buildings is strong in many sectors (data centers, logistics facilities and others). Also, demand remains strong for large redevelopment projects and renovation projects.
- The COVID-19 pandemic has revealed many social issues and is speeding up the pace of social changes.

## 01 Markets (Demand for building construction and equipment)

Office buildings	Many new redevelopment projects in metropolitan areas; forecast growth of the renovation/replacement market
Data centers	Market is growing due to the scaling out of data centers to operate more servers
Distribution centers	More demand for warehouses/distribution centers as e-commerce grows; more large-scale and multi-tenant facilities in recent years
Hospitals	Possibility of building expansions and other investments for the realignment/consolidation of public-sector and other hospitals in Japan
Hotels	COVID-19 impact may increase as hotel companies delay openings and reexamine or cancel plans for new hotels

## 02 Society

Digital technology	Telework and other diversification of how people do their jobs Use of resource and labor-saving i-Construction and of digital transformation technologies More rigorous measures involving risk management for information security
Sustainability	Activities to achieve a low-carbon or carbon-free society Establishment of an environment for preventing the spread of infectious diseases

## 01 Fundamental goals

Business and corporate value growth by making core businesses more profitable and creating new business opportunities

Help create a sustainable society through the convergence of people and technologies

## 02 Core strategies

### Business Strategy

- ◆ More advanced life cycle total solutions that can benefit all stakeholders

### Technology Strategy

- ◆ Leading-edge technologies for higher productivity

### Human resources Strategy

- ◆ “Smart WORK” working style reforms and workforce diversity

### Governance

- ◆ An infrastructure for sound management of the Hibiya Engineering Group



## More advanced life cycle total solutions that can benefit all stakeholders

01

### Build a new customer base

- ◆ Create new core customers (gold customers)
- ◆ Cooperate with alliance partners for business domain and customer base enlargement
- ◆ Create and execute strategies for individual customers and regions

02

### Expand value-added business activities

- ◆ Enlarge the renovation business domain to include decarbonization and other sectors by providing solution menus and facility services that customers need
- ◆ Supply new forms of value involving the use of the IoT, AI and other smart technologies for community creation and improvements
- ◆ Business activities that encompass all of the Hibiya Engineering Group's capabilities

## Leading-edge technologies for higher productivity



01

### Technologies /Competitive edge

- ◆ Renovation business growth by using the life cycle service center
- ◆ Create a workforce with skills in a broad range of technologies
- ◆ Training programs with target levels for technologies
- ◆ Upgrade jobsite skills by using ICT tools for labor-saving measures, horizontal expansion of technology use and other advances
- ◆ Mutual success and prosperity with partner companies

02

### Safety/Quality

- ◆ Use of ICT for the elimination of accidents and customer complaints
- ◆ Construction that unifies jobsite and office work; higher quality of services
- ◆ Use the construction career advancement system to recruit and train engineers



## “Smart WORK” working style reforms and workforce diversity

01

### Human resources diversity

- ◆ Use many types of recruiting activities
- ◆ Upgrade specialized skill education and all training programs
- ◆ Create an environment where people of all backgrounds can realize their full potential

02

### Working style reforms

- ◆ Assign people based on suitability and regions
- ◆ Working styles not restricted by time and locations
- ◆ Use the digital transformation for business process reforms and higher efficiency  
(Rebuild information security and reinforce the framework for this security)

03

### Health management

- ◆ Measures to monitor and manage the health of employees
- ◆ Establish health indicators to encourage employees to stay healthy and make more improvements

## A seamless value chain for the entire Hibiya Engineering Group

01

**Hibiya Tsusho**

Trading company

(Sale of building equipment, etc.)

02

**Nikkei**

Manufacturer

(Fire/disaster response equipment and other products)

### Work with alliance partners

- ◆ Locate environmentally responsible products, develop new business channels
- ◆ Strengthen services for the maintenance of equipment

### Build stronger ties with other group companies

- ◆ Supply unitized products and products that reduce the need for jobsite labor

\* Hibiya Engineering will merge with wholly owned subsidiary HIT Engineering on January 1, 2021. HIT Engineering is a construction firm for the installation of equipment. Activities include the planning, design, installation and maintenance of manufacturing, environmental and building equipment. The absorption of HIT Engineering will make it possible to consolidate resources in these business activities, improve efficiency and establish a base for more growth.



## Help create a sustainable society and aim corporate value growth

SUSTAINABLE DEVELOPMENT GOALS



01

### Environment

02

### Social

03

### Governance

#### Activities for a sustainable society

- ◆ Proposals to customers for conserving energy and reducing CO<sub>2</sub>
- ◆ Collaboration with business partners for a carbon-free society
- ◆ Supply value through community creation, smart community projects, zero-energy building projects and other activities

#### “Smart WORK” activities

- ◆ An environment where a motivated and diverse workforce can shine
- ◆ A commitment to corporate social responsibility
- ◆ Maintain a proper work-life balance; measures to improve the health of employees
- ◆ Training programs for the next generation of engineers

#### A foundation for sound management

- ◆ Establish an internal control system
- ◆ Upgrade compliance programs
- ◆ Ensure the transparency of management (strengthen IR, compliance with revised Corporate Governance Code and other activities)

Hibiya Engineering is looking ahead to the future by focusing on the following themes, all based on the concept of “creating new added value by envisioning the cities and buildings of the future.”

01

## Reinforce equipment installation skills

- ◆ Further increase comprehensive skills involving equipment and facilities by strengthening and enlarging the group's value chain with actions that may include alliances and M&A
- ◆ Establish the digital transformation as the group's new core value

02

## Expand business domains

- ◆ Establish an innovation laboratory for developing technologies in order to create the future of cities and buildings
- ◆ Become a company capable of devising solutions for entire buildings
- ◆ Promote environment-friendly projects

03

## A stronger foundation

- ◆ Investments looking to the future for a structure for the “Hibiya method” and for the long-term maintenance of a quality workforce
- ◆ To “Create the Future of HIBIYA,” use well-structured training programs to give employees advanced skills and build an organization that has speed and flexibility to enable people to realize their potential

## Consistent growth by building a stronger profit structure for achieving the goals of the Seventh Medium-term Management Plan

01

### Investments to “Create the Future of Hibiya”

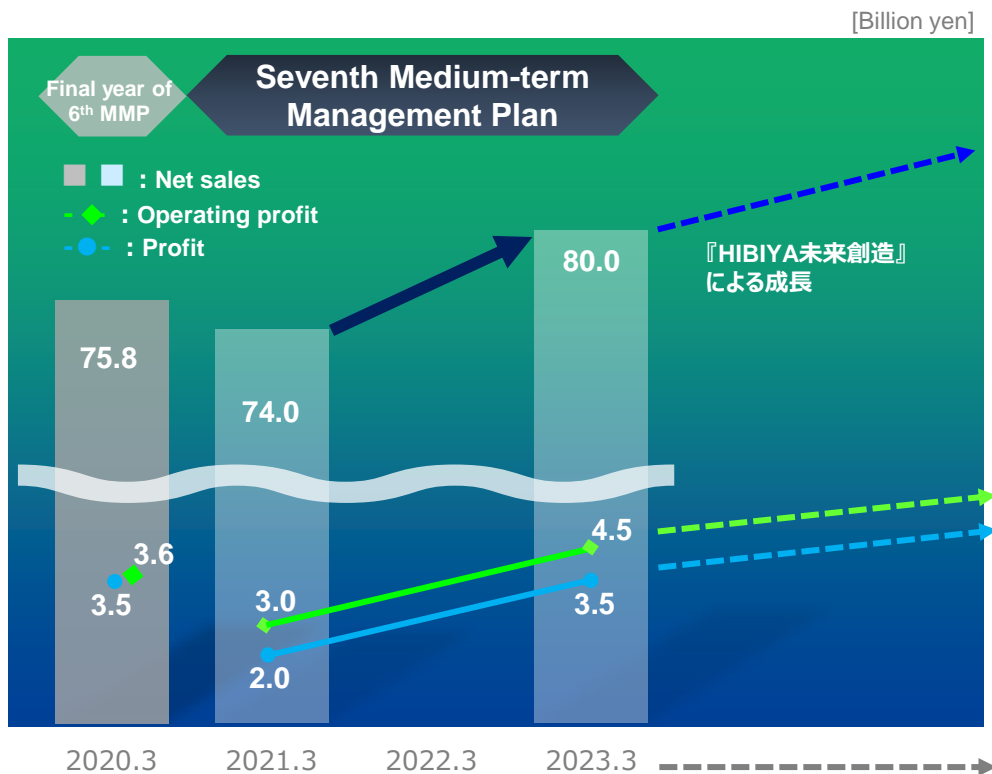
- ◆ Alliances, M&A and other actions to strengthen and enlarge the group’s value chain
- ◆ Reinforce the base for the digital transformation to improve business processes and productivity
- ◆ Upgrade technology development, proposal creation, and human resource development capabilities
- Earn a return on investments that exceeds the cost of capital

02

### Shareholder distributions

- ◆ Maintain and increase the dividend while using profit targets as the basis
- ◆ Repurchase stock

## Seventh Medium-term Management Plan



### FY3/2023 (final year)

{Billion yen}

Orders received

80.0

Net sales

80.0

Operating profit

4.5

Profit attributable to owners of parent

3.5

ROE

6.0% or more

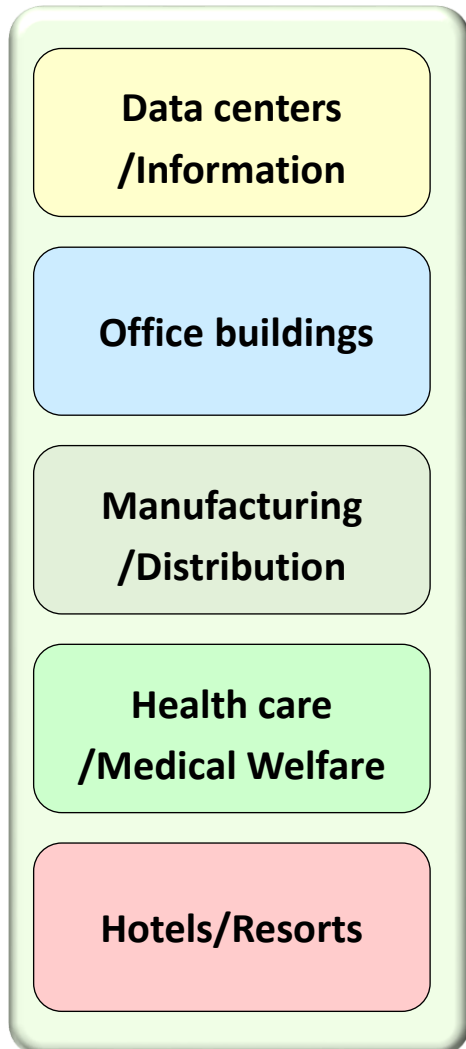


# **Major Completed Projects in the First Half**

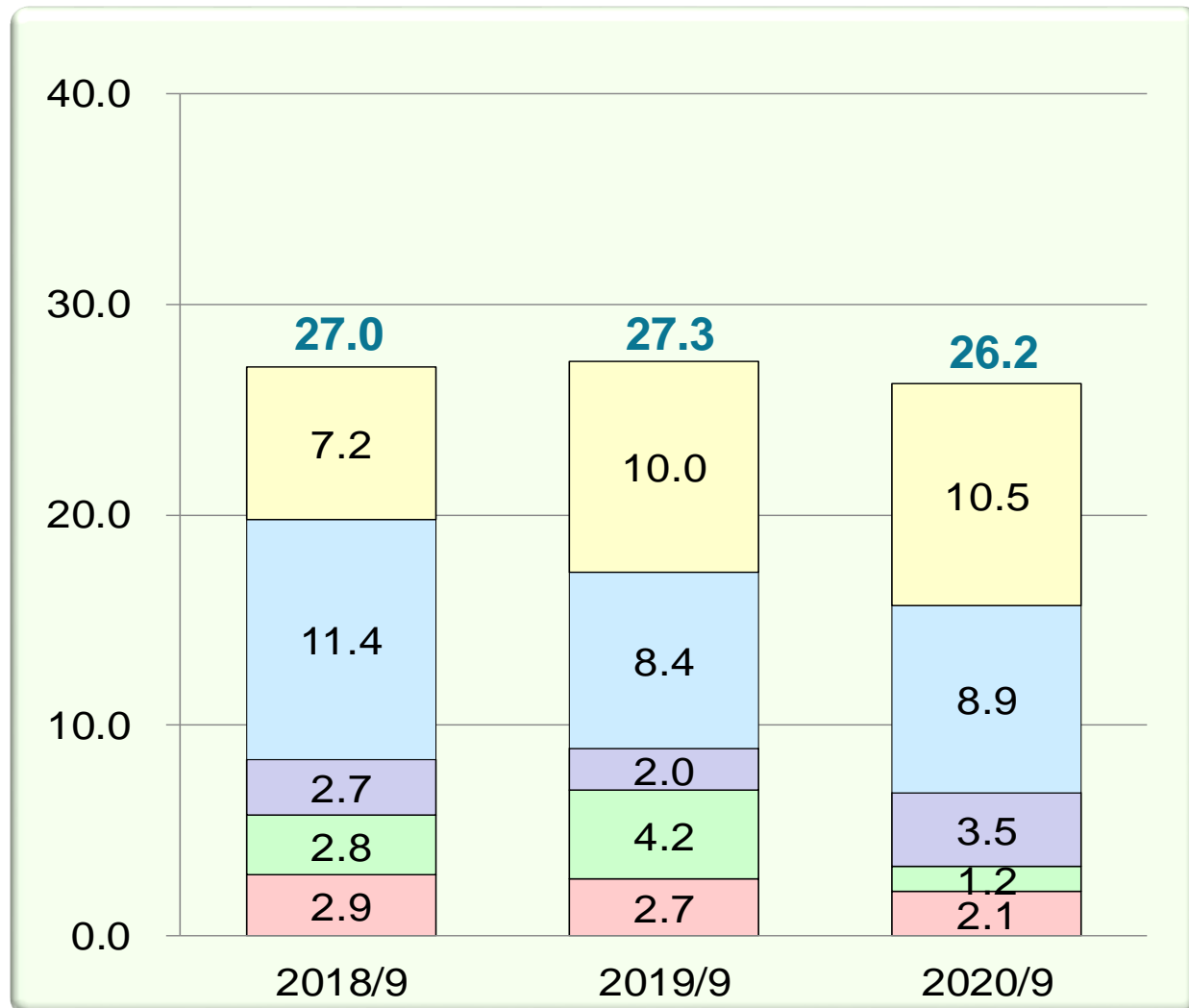


# Orders Received of the Priority Domains

## 【Priority Domains】



(Billion yen)



## MIYASHITA PARK

Combines high and low-rise buildings with a shopping complex, hotel and park



Location	Shibuya-ku, Tokyo
Floor area	46,086m <sup>2</sup>
Structure	18 stories above ground/2 stories below ground
Hibiya's work	Air conditioning

## WITH HARAJUKU

TOKYO's new presentation stage that conveys culture and creativity to the world



(Photo: Yoji Watanabe)

Location	Shibuya-ku, Tokyo
Floor area	26,666m <sup>2</sup>
Structure	10 stories above ground/3 stories below ground
Hibiya's work	Air conditioning/sanitation

## Sumitomo Realty & Development Kojimachi Garden Tower

An office tower with seismic isolation that is conveniently near Kojimachi Station



Location	Chiyoda-ku, Tokyo
Floor area	47,950m <sup>2</sup>
Structure	22 stories above ground
Hibiya's work	Air conditioning/sanitation

## NTT Shin-Kuhonji Building

The NTT West Kumamoto Building serves as a base for disaster readiness



Location	Kumamoto city, Kumamoto
Floor area	6,833m <sup>2</sup>
Structure	6 stories above ground
Hibiya's work	Air conditioning/sanitation



## Hotel Villa Fontaine Grand Tokyo Ariake

A high-end hotel in the Ariake Garden strategic development zone of Tokyo



Location	Koto-ku, Tokyo
Floor area	33,522m <sup>2</sup>
Structure	16 stories above ground/1 stories below ground
Hibiya's work	Air conditioning/sanitation

## FUJISAN MISHIMA TOKYU HOTEL

A spectacular new hotel in Mishima with a view of Mount Fuji



Location	Mishima city, Shizuoka
Floor area	10,563m <sup>2</sup>
Structure	14 stories above ground
Hibiya's work	Sanitation

## ESR Amagasaki Distribution Center

One of the largest and most advanced distribution centers in Asia



Location	Amagasaki city, Hyogo
Floor area	388,570m <sup>2</sup>
Structure	6 stories above ground
Hibiya's work	Sanitation

## Ichikawa 1<sup>st</sup> Town Hall

A town hall building featuring a façade with louvers for greenery



Location	Ichikawa city, Chiba
Floor area	30,480m <sup>2</sup>
Structure	7 stories above ground/1 stories below ground
Hibiya's work	Sanitation

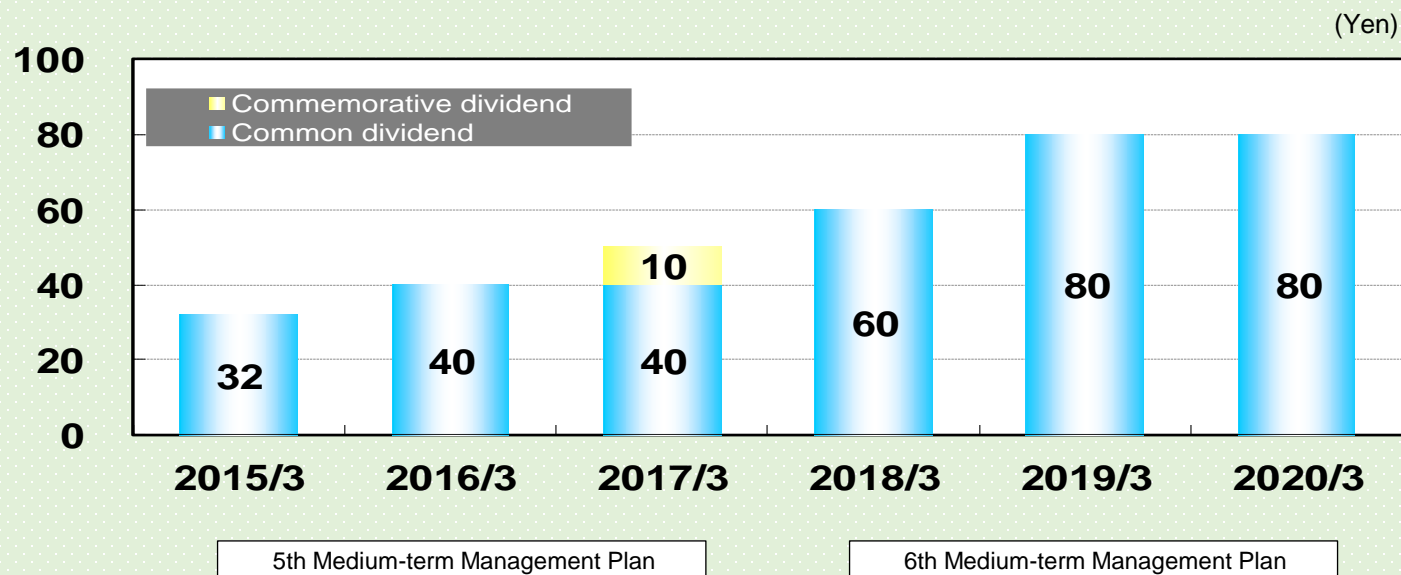


# Reference



# Distributions to Shareholders

## Dividends per share



## Repurchases

	2015/3	2016/3	2017/3	2018/3	2019/3	2020/3
Shares (thousand)	450	440	460	4,490	370	300
Amount (million yen)	720	700	750	11,020	700	560

5th Medium-term Management Plan (2015/3 - 2017/3)

6th Medium-term Management Plan (2018/3 - 2020/3)

## Use of LED lights at all Nagano prefectural government buildings

The first project by a prefecture in Japan that uses a large-scale bulk lease for many buildings and facilities in order to lower CO<sub>2</sub> emissions

### The Nagano Prefecture LED Light Project

A bulk lease was used to install LED lights at all prefectural government buildings and facilities in order to lower CO<sub>2</sub> emissions.

#### 【Cost】

- ▶ About ¥300 million

#### 【Purpose】

- ▶ Reduce CO<sub>2</sub> emissions and electricity use at the prefectural government buildings and facilities
- ▶ Use of a lease prevented spikes in expenses

#### 【Length of project】

- ▶ July 2018 to September 2019 (LEDs in police stations and boxes)



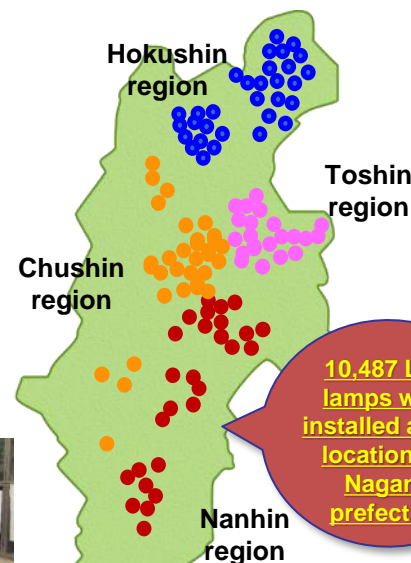
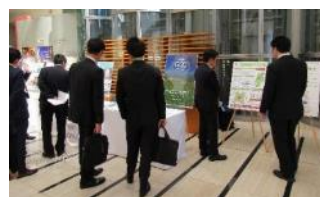
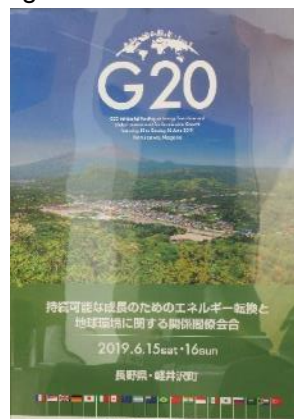
### Participating companies

Organization /financing	Mitsubishi UFJ Lease & Finance Co., Ltd.
Design/installation /inspection	Hibiya Engineering
Design/installation	Six companies in Nagano

### Hibiya Engineering activities

- ▶ Studies, installation work and maintenance services for lowering CO<sub>2</sub> emissions associated with current equipment

Information about the LED project was presented at the G20 Climate Sustainability Working Group meeting that was held in Nagano



Hibiya Engineering plans to use expertise gained from this project to meet the needs of local governments throughout Japan for activities that lower CO<sub>2</sub> emissions.

# Alliances to meet public sector needs and receive renovation project orders

## Self-sufficient and dispersed energy and other equipment for Information Center Manazuru

Information Center Manazuru, Manazuru-machi, Ashigarashimo-gun, Kanagawa

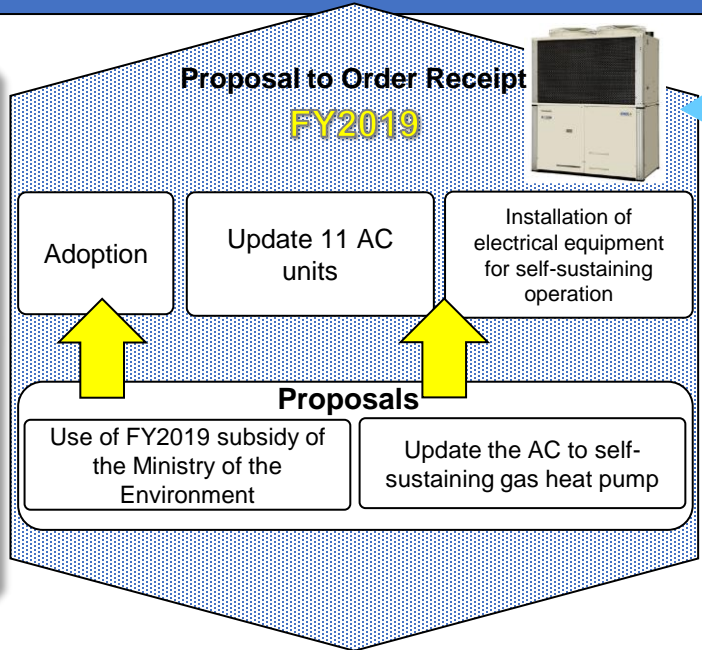


### Needs

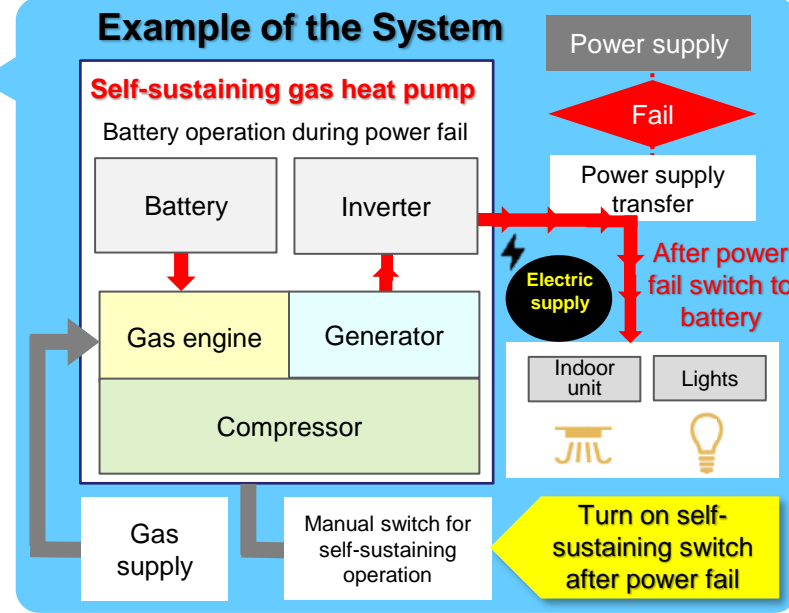
Equipment for evacuation site designation based on the Manazuru regional disaster response plan

Upgrade of the current air conditioning system, which is more than 20 years old

Renovations to conserve energy and lower the cost of operating the center



### Example of the System



**Construction consultant (Design, supervision, etc.)** **Hibiya Engineering (Oversight, construction)**

- Expected benefits**
- ◆ Reduction in greenhouse gas emissions (CO<sub>2</sub>)
  - ◆ Lights, AC and other equipment at evacuation sites function even after a disaster

# Alliances to meet public sector needs and receive renovation project orders

Project to upgrade carbon management and project for installation of self-sufficient, dispersed energy equipment

## Buildings of the town of Sango-cho in Nara prefecture

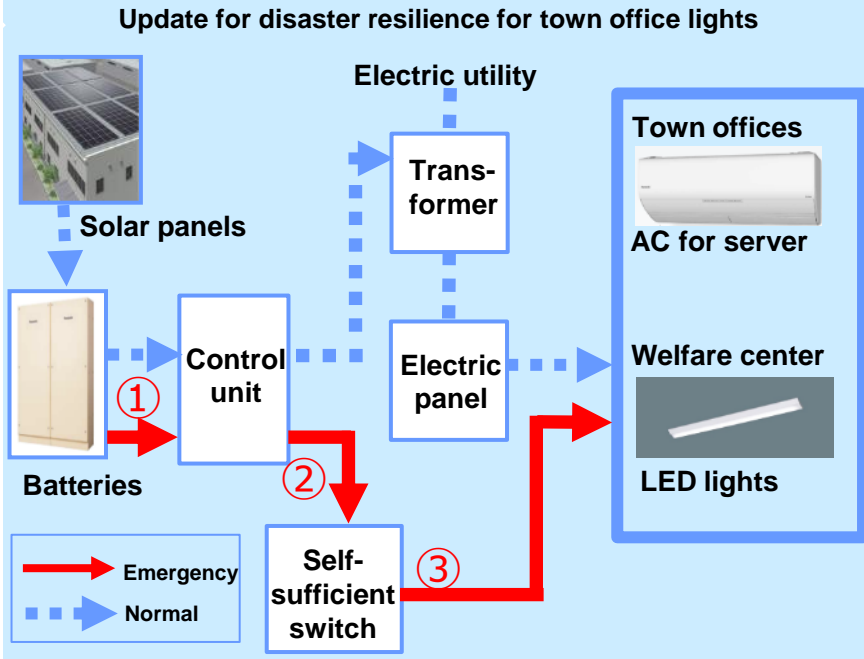


- Needs**
- Update aging equipment
  - Reduce greenhouse gas emissions
  - Add disaster readiness capabilities (town office, welfare center)

FY3/19  
Plan for carbon management upgrade project

FY3/20  
Execution of carbon management upgrade project

Execution of project for disaster readiness, carbon reduction, self-sufficient/dispersed energy equipment, etc.



Electricity path during an emergency

- Electricity released from batteries
- Goes to the self-sufficient switch
- Powers LED lights and other items

Location	Updates				
	AC	Lights	Transformer	EMS	Disaster response
Sango Elementary School	○			○	
Sango Kita Elementary School	○			○	
Sango Town Office	○	○		○	○
Library	○	○		○	
Culture Center		○	○	○	
Sports Center	○	○		○	
Welfare Center		○			○

**Design consultant**  
(design supervision, commissioning)

**Hibiya Engineering**  
(leader, design, installation)

# Natural Gas Cogeneration System

A local gov't used a Hibiya natural gas cogeneration system at a hot spring lodge

- Previously unused energy is utilized to cut the cost of electricity by 60%, which lower CO<sub>2</sub> emissions

## City of Shimada

A place where people /industry/culture come together  
A healthy city of water and greenery

+ Goal is also to be a leader in the field of reusable energy

### Issue at city's hot spring facility

Natural gas produced by the hot spring, containing 86% methane, was  
**released to the atmosphere**

Idea and execution

Lowers CO<sub>2</sub> emissions

Hibiya technologies/expertise  
Use natural gas cogeneration to produce electricity and use exhaust heat

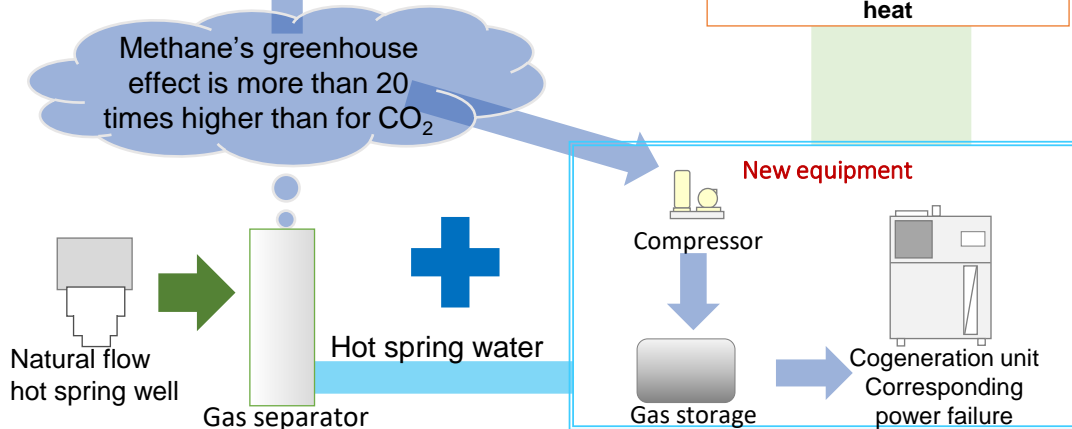
## Kawane Hot Spring Hotel and SPA

For the lodge (100kW)

For spa hot water (155kW)

Electricity

Heat





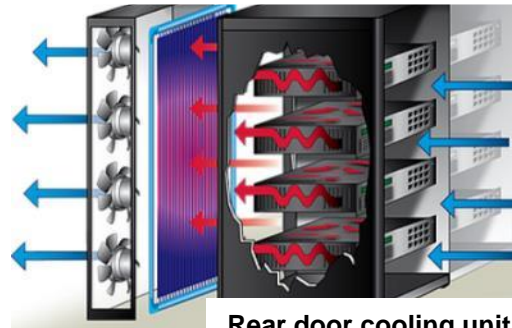
A leader in the data center building sector – 850,000 square meters

## From low to high loads and even **ultra-high loads**

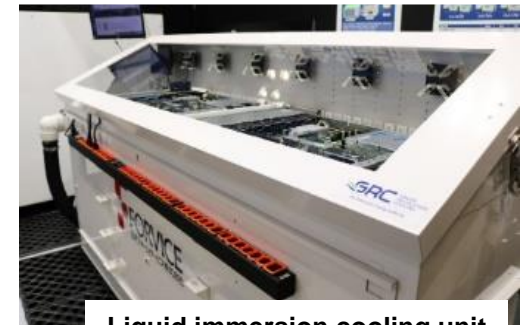
Period	1966~	2013~	2020~
Category	The first DCs/phone equipment room	Cloud DC	AI/Supercomputer DC
Major customers	Telecommunications companies	E-commerce sites	Automobile companies, research institutes, others
Heat generation	Low load	High load	Ultra-high load
Rack heat output	~5kW/rack	~10kW/rack	~50kW/rack
Cooling method	Computer AC units	Chilled water Indirect evaporation	Rear door cooling Liquid immersion cooling
Features	Reliable <ul style="list-style-type: none"> <li>• Individual AC units</li> <li>• Floor blowers</li> </ul>	Energy efficient <ul style="list-style-type: none"> <li>• Wall blowers</li> <li>• Uses natural energy (external air/water)</li> </ul>	Cooling for substantial heat generation <ul style="list-style-type: none"> <li>• Cooling units for individual racks</li> <li>• Immersed in a liquid for cooling</li> </ul>



Indirect evaporation cooling unit



Rear door cooling unit



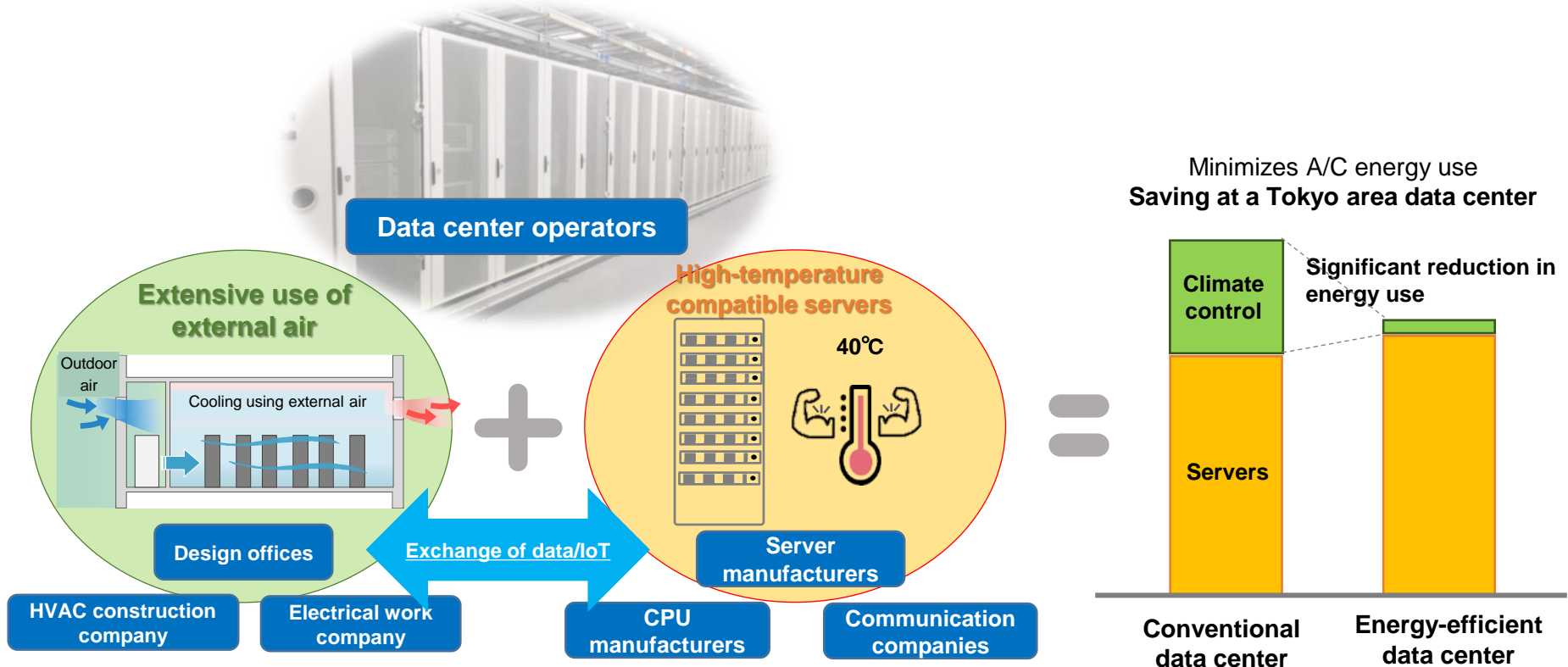
Liquid immersion cooling unit

# Minimizing Data Center A/C Energy Consumption

## Activities for creating an energy-efficient data center for NTT Data Corporation

### Used for HVAC equipment control by server internal sensors

- Data links incorporating the IoT overcome barriers between ICT equipment management and facility management
- Conventional temperature sensors do not monitor the internal temperature of servers, which is what must be held down  
⇒ Using data from sensors inside servers for climate control makes it possible to control temperatures in the most important locations



# Aisle Capping for Smaller Computers in Data Centers

## A flexible aisle capping system for small computer rooms

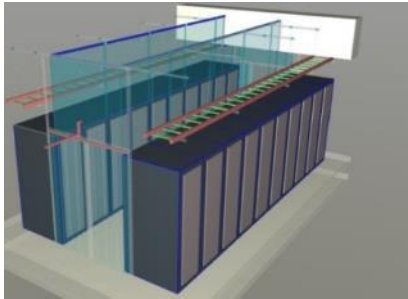
### Features

**More efficient climate control**  
Uniform temperature of rack air supply surface

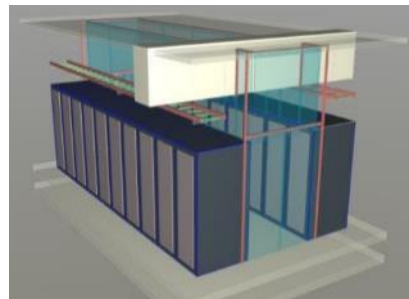
**Flexible installation to match environment for equipment**

**Low cost by using general-purpose sheets**

### Potential applications



Capping with ceiling



Capping with no ceiling

### Capping in use



Installed under a ceiling beam



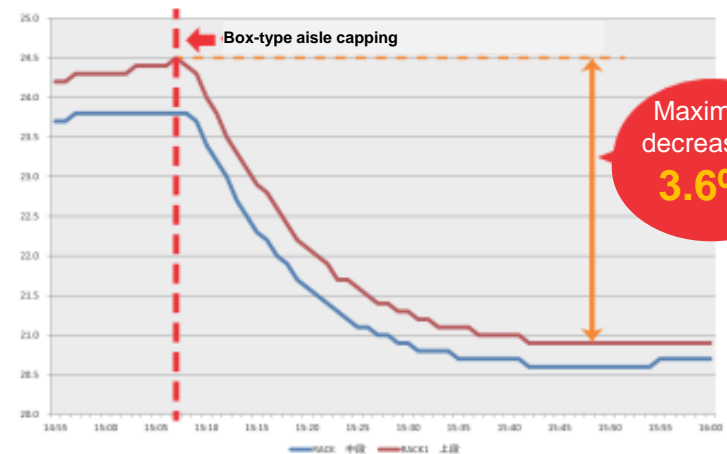
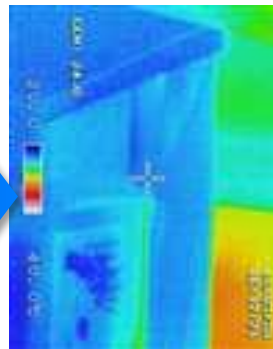
Box-type capping

### Benefits



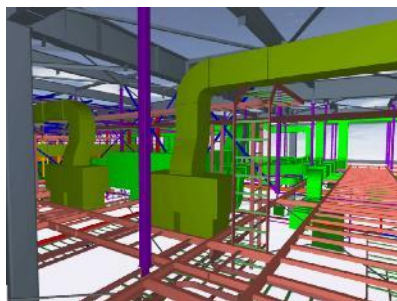
**2.2°C decrease in temperature**

Improvement in air supply surface allows a more energy efficient thermostat setting for the climate control system

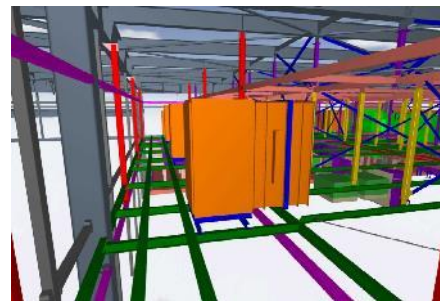


## Fully utilizing BIM raises calculation profits without any reworking

- Repeating output along with construction BIM improves the ability to create cost-reduction ideas, such as for altering pipe configurations
- 3D studies as construction proceeds for placing pipes and ducts while avoiding steel beams, braces, racks and other obstacles
- Allows giving priority to Hibiya Engineering's requests, resulting in faster progress and no need to redo any work



No need to repeat tasks to fix mistakes



Construction proceeds using adjusted diagrams



## Advantages of using BIM

### 3D

- Placement adjustments/interference checks for facility designs
- Adjustments using overall diagrams, faster decision-making
- More efficient checking of confirmation applications, etc.

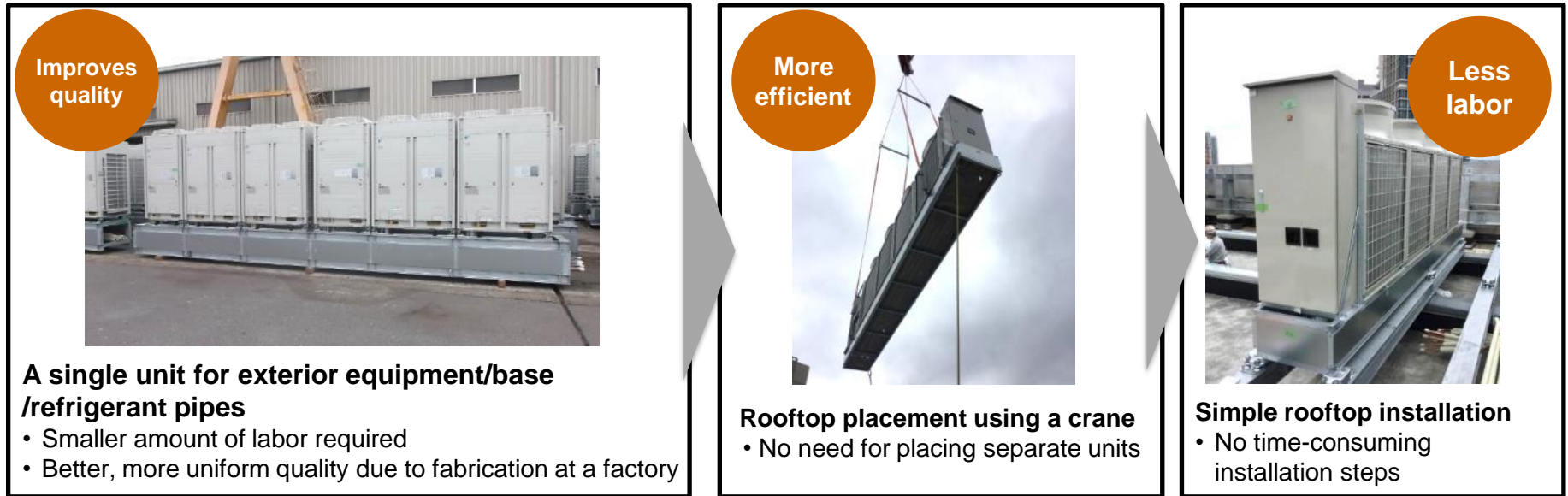
### Database links

- BIM-linked automatic calculations (loads, energy conservation)
- Automated equipment designs (device tables, device configurations)
- Use of information about building characteristics for maintenance operations

**Building Information Modeling (BIM)** is a method for constructing a building data model consisting of 3D shape information created in a computer and various characteristics of a building, such as names and floor areas of rooms, the types and properties of materials used, finishing work, and other items.

## Labor-saving method for installing rooftop equipment raises efficiency

### Simple installation with single unit package for exterior equipment



**Improves quality**

**A single unit for exterior equipment/base /refrigerant pipes**

- Smaller amount of labor required
- Better, more uniform quality due to fabrication at a factory

**More efficient**

**Rooftop placement using a crane**

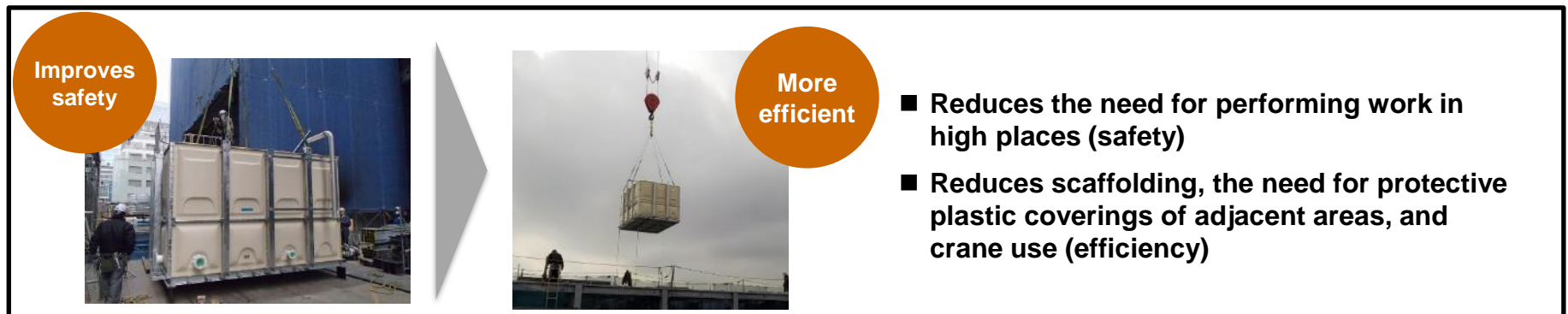
- No need for placing separate units

**Less labor**

**Simple rooftop installation**

- No time-consuming installation steps

### Installation of pre-assembled rooftop water tank



**Improves safety**

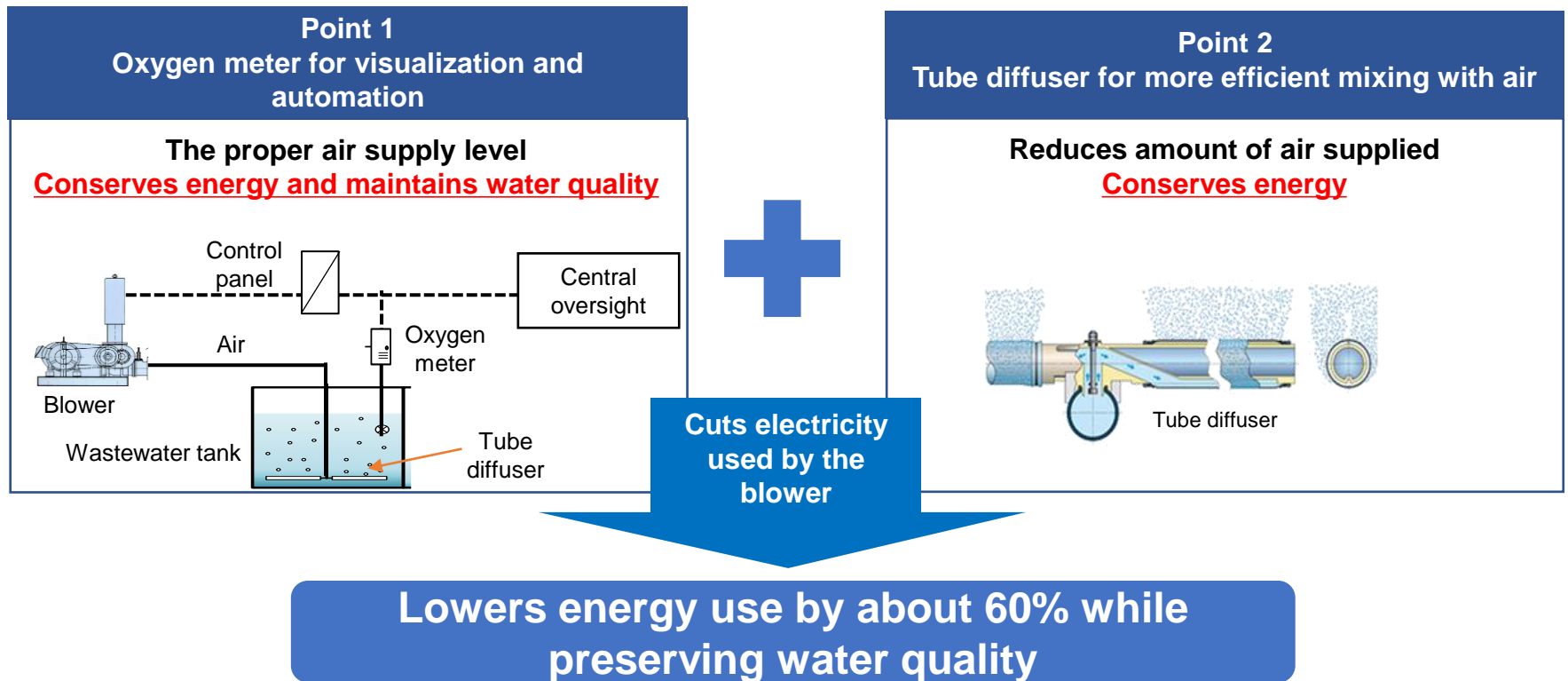
**More efficient**

- Reduces the need for performing work in high places (safety)
- Reduces scaffolding, the need for protective plastic coverings of adjacent areas, and crane use (efficiency)

## Energy conservation and water quality at wastewater treatment facilities

Energy-efficient climate control and electrical equipment as well as a focus on conserving energy in sanitation equipment

- Wastewater treatment facilities
- Requires the supply of an enormous volume of air at a steady rate
  - Required amount of air changes depending on day of the week and time of day
  - Too much or too little air causes water quality to decline



**Hibiya Tsusho** Trading company

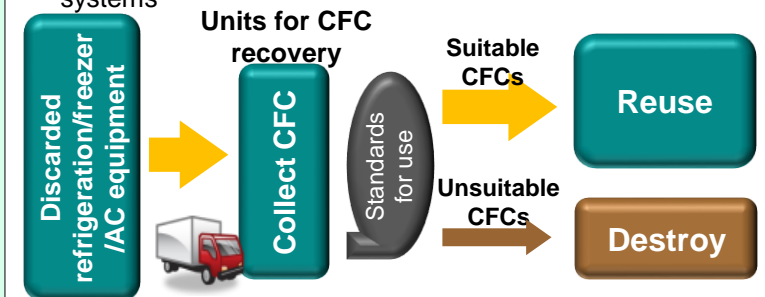
## Reuse of recovered chlorofluorocarbons (CFCs)

### Highlights of processing CFCs for reuse

- ◆ Little energy needed for reuse of CFCs
- ◆ Minimal release of CO<sub>2</sub> during processing
- ◆ Processing produces little industrial waste
- ◆ Recovered CFCs can be used effectively
- ◆ Less expensive than destroying CFCs

### Processing of recovered CFCs and reuse

- ◎ CFCs collected from refrigeration/freezer/air conditioning equipment and converted to a CFC gas by a recovery system
- ◎ The gas is reused mainly by using it to refill air conditioning systems



CO<sub>2</sub> emissions from the reuse of CFCs are only 1/12 of emissions from CFC destruction

Source: Refrigerant Collection and Processing Technologies (published by Refrigerant Collection Promotion and Technology Center)

**Nikkei** Manufacturer

## Manufacture of equipment, disaster response units, etc.

### Water cutoff damper



- ◆ Prevents rainwater from entering through ducts during a downpour or flood

### Access control system (NASCA)

- ◆ Can be linked with card reader, biometrics and other various systems



**時代にまっすぐ、技術にまじめです。**