時代にまっすぐ、技術にまじめです。

Earnings Announcement For the First Half of FY3/17

Hibiya Engineering,Ltd.

November 21, 2016

These materials include forward-looking statements that incorporate risks and uncertainties and are not guarantees concerning future performance.
Future performance may differ from forecasts in these materials due to changes in the operating environment and other reasons.

Financial Summary

For the First Half of FY3/16

Financial Summary for the First Half of FY3/17

Financial Highlights (Consolidated)

■ Sales and earnings increased in all business and customer categories with performance backed by cost reduction measures such as strict oversight of profitability when orders are received and the use of centralized purchasing.

(Billion yen)

	2015/9 Actual	2016/9 Actual	YoY (%)
Orders Received	35.86	34.43	(4.0%)
Net sales	27.25	29.58	8.6%
Operating Income	(0.53)	1.54	–
Ordinary Income	(0.33)	1.47	–
Profit attributable to owners of parent	(0.27)	0.90	–

Financial Summary for the First Half of FY3/17

Revision on Fiscal Year Plan (Consolidated)

■ The fiscal year earnings plan was raised mainly because of an improvement in the profitability of construction projects.

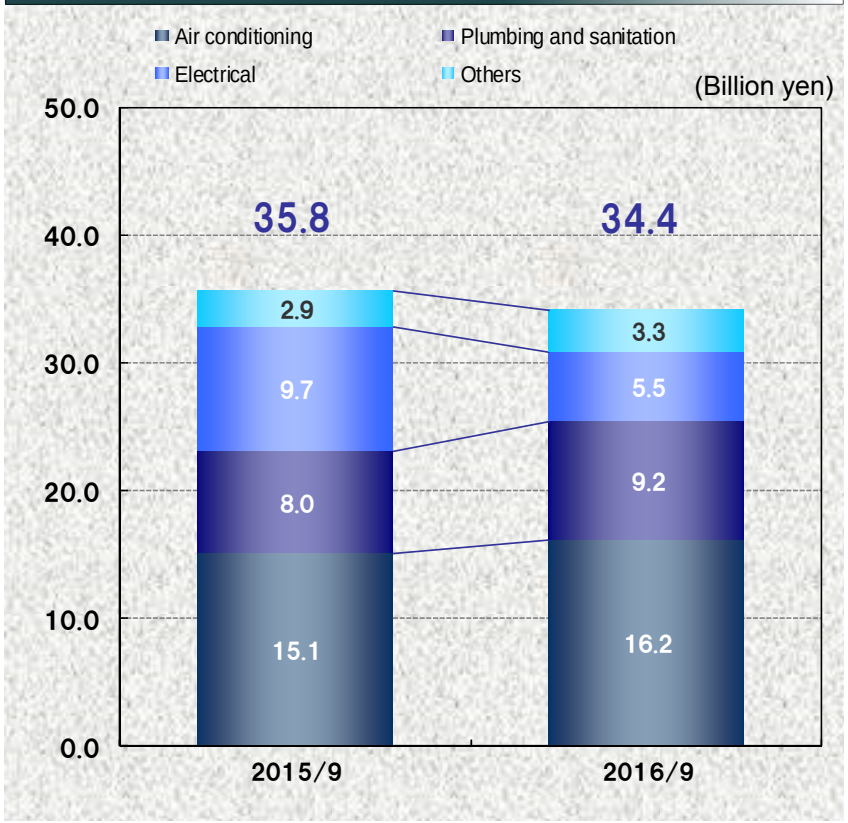
(Billion yen)

	2017/3 Initial Plan	2017/3 Revised	Change	First 3 years target of Fifth Medium-term Management Plan
Orders Received	75.0	75.0	±0.0	70.0 ~
Net sales	75.0	75.0	±0.0	70.0 ~
Operating Income	3.0	4.0	+1.0	2.5 ~
Ordinary Income	4.0	5.0	+1.0	3.3 ~
Profit attributable to owners of parent	2.5	3.0	+0.5	2.0 ~

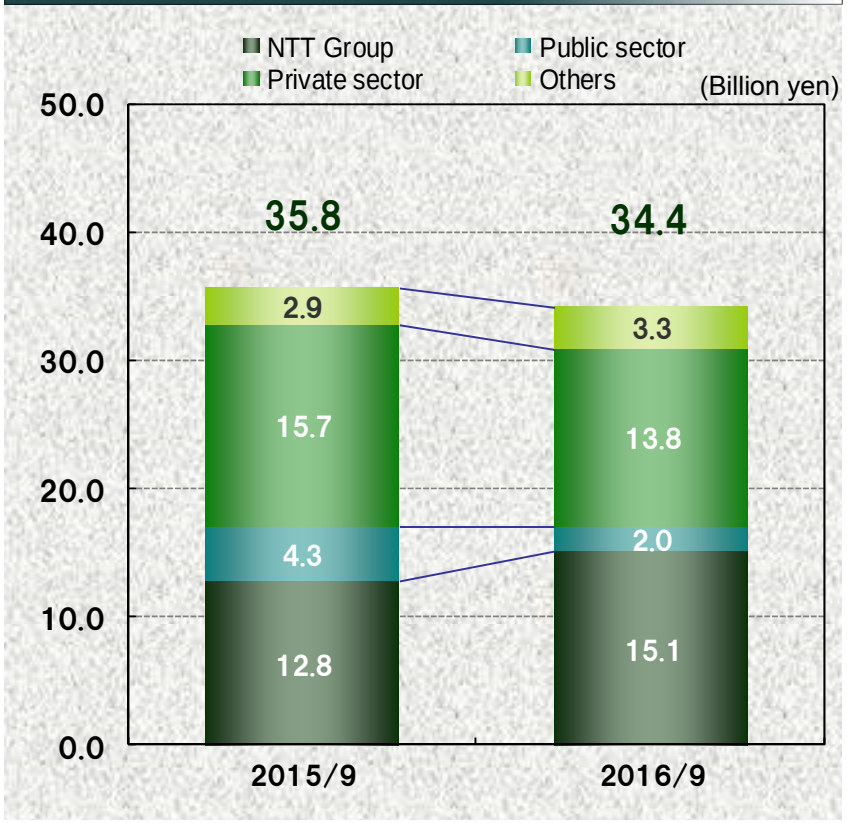
Orders Received by Category & by Customer (Consolidated)

■ Orders were as planned due to the use of life cycle total solutions*.

By category



By customer



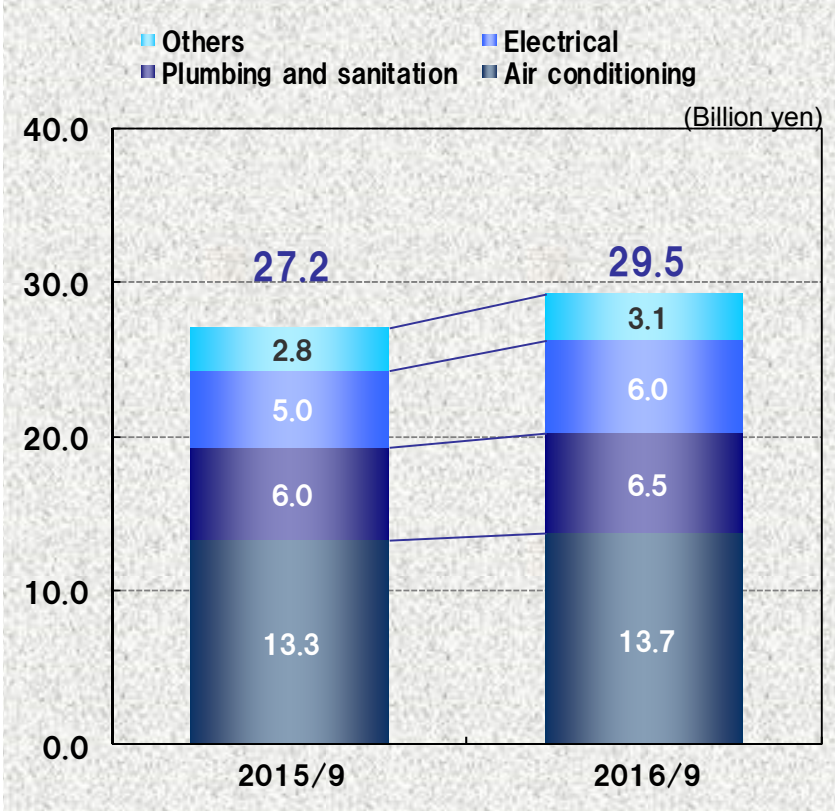
*Other orders are orders received at group companies.

* Hibiya Engineering aims to build “best partner” relationships with customers by enlarging services across the entire life cycle of a building in order to meet their increasingly diverse, sophisticated and multi-faceted requirements.

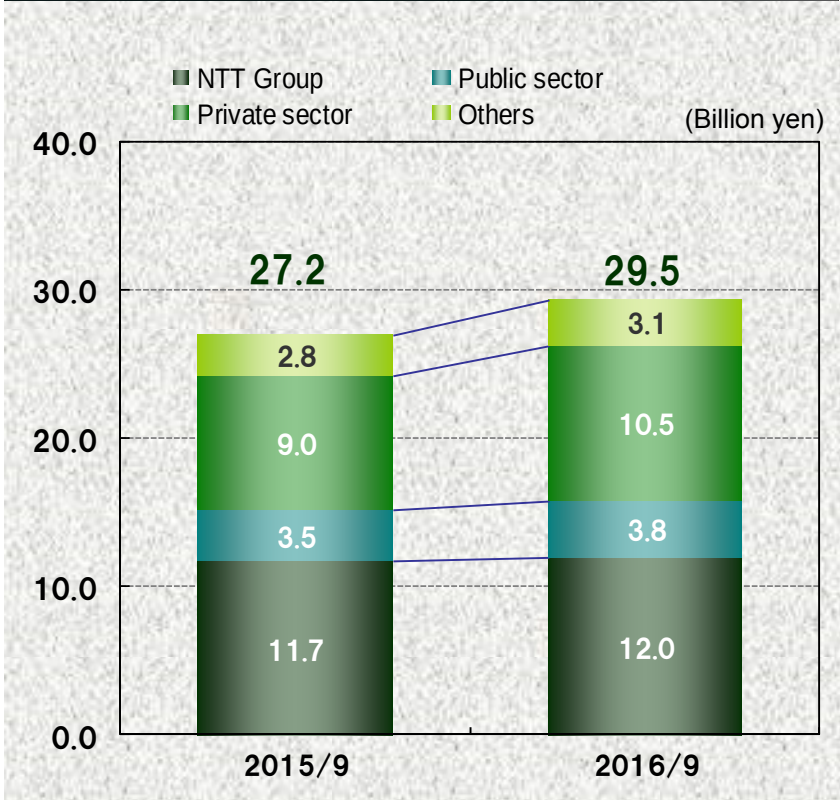
Sales by Category & by Customer (Consolidated)

■ Sales were higher in all business and customer categories.

By category



By customer



*Others are sales at group companies.

Financial Summary for the First Half of FY3/17

Distributions to Shareholders

Dividends

【Basic policy】

■ To provide even more stable earnings distributions for shareholders, the basic policy is to place emphasis on the consolidated dividends-on-equity (DOE) ratio.

【FY3/17】

■ Reflecting more progress toward goals of the Fifth Medium-term Management Plan and the group's 50th anniversary in July 2016, plan to pay a dividend of 50 yen, including a 10 yen commemorative dividend
(25 yen interim and year-end dividends, 10 yen higher than for FY3/16)

■ Paid a 25 yen interim dividend per share as planned

Treasury Shares

【Basic policy】

■ We will continue to repurchase shares in a flexible manner as one way to distribute earnings to shareholders.

【Actual/Plan】

■ Allowance of the year	500,000 shs	800 million yen
■ Repurchased in the 1st half of FY3/17	207,000 shs	330 million yen
(Progress)	(41.4%)	(41.8%)

The Fifth Medium-term Management Plan and Accomplishments for the First Half of FY3/17

The Fifth Medium-term Management Plan: April 2014 - March 2017

The Fifth Medium-term Management Plan

(April 2014 – March 2017) (1)

Fundamental Goal

Become a comprehensive engineering services organization that is a one-stop source of services for all customer needs

Mega-trends

- Energy
- ICT/smart
- BCP/ disasters
- Global

< Core Strategy>

Supply life cycle total solutions

Increase orders in strategic domains

- ■ Reinforce solution-based sales
- ■ Upgrade solution technologies
- ■ More synergies among group companies
- ■ Make extensive use of alliances

Build a stronger foundation

- ■ Accumulate and use information and knowledge
- ■ Unified management for the entire group
- ■ Focus on cost/performance to make construction more efficient
- ■ More advanced training and emphasis on safety and quality

Confidence and safety

- ■ Strengthen CSR and compliance activities
- ■ Distribute more earnings to shareholders
- ■ Improve employee satisfaction

Hibiya Engineering strengths

- Accumulate energy and “smart” technologies
- Improve solution proposal skills
- Reinforce the value chain from consulting to maintenance
- BCP, safety and quality

The Fifth Medium-term Management Plan
(April 2014 – March 2017) (2)

Supply life cycle total solutions by building on group synergies

[Planning Stage]
- Surveys, diagnoses, consulting
- Plan formulation and simple monitoring
- Use of subsidies, rough proposal

[Construction Stage]
- Project implementation design
- Efficient and energy-responsible construction
- Installation of equipment (new, updates)

[Maintenance and Management Stage]
- Improve operations, fine tuning
- Regular inspections and maintenance
- Lower the life cycle cost

Equipment sales (AC, electrical, etc.)

Energy visualization and control (BEMS) (See page 19)

Reuse of materials (recovery of CFC gas, etc.) (See page 18)

Air conditioning system engineering

Disaster preparedness (seismic dampers) (see page 18)

Security (NASCA) (see page 21)

Small repairs and maintenance (electrical)

Production machinery surveys, diagnosis, plans

Production machinery maintenance, management

Consolidated subsidiary

Trading company

Hibiya Tsusho

Marketing of air conditioning/ plumbing and sanitation/ electrical equipment and devices, etc.

Manufacturing

Nikkei

Building security systems, manufacture and sale of disaster prevention devices, etc.

Agro engineering

HIT Engineering

Production equipment, Design, installation, maintenance and management (Medicine, food, etc. production plants)

Hibiya Engineering

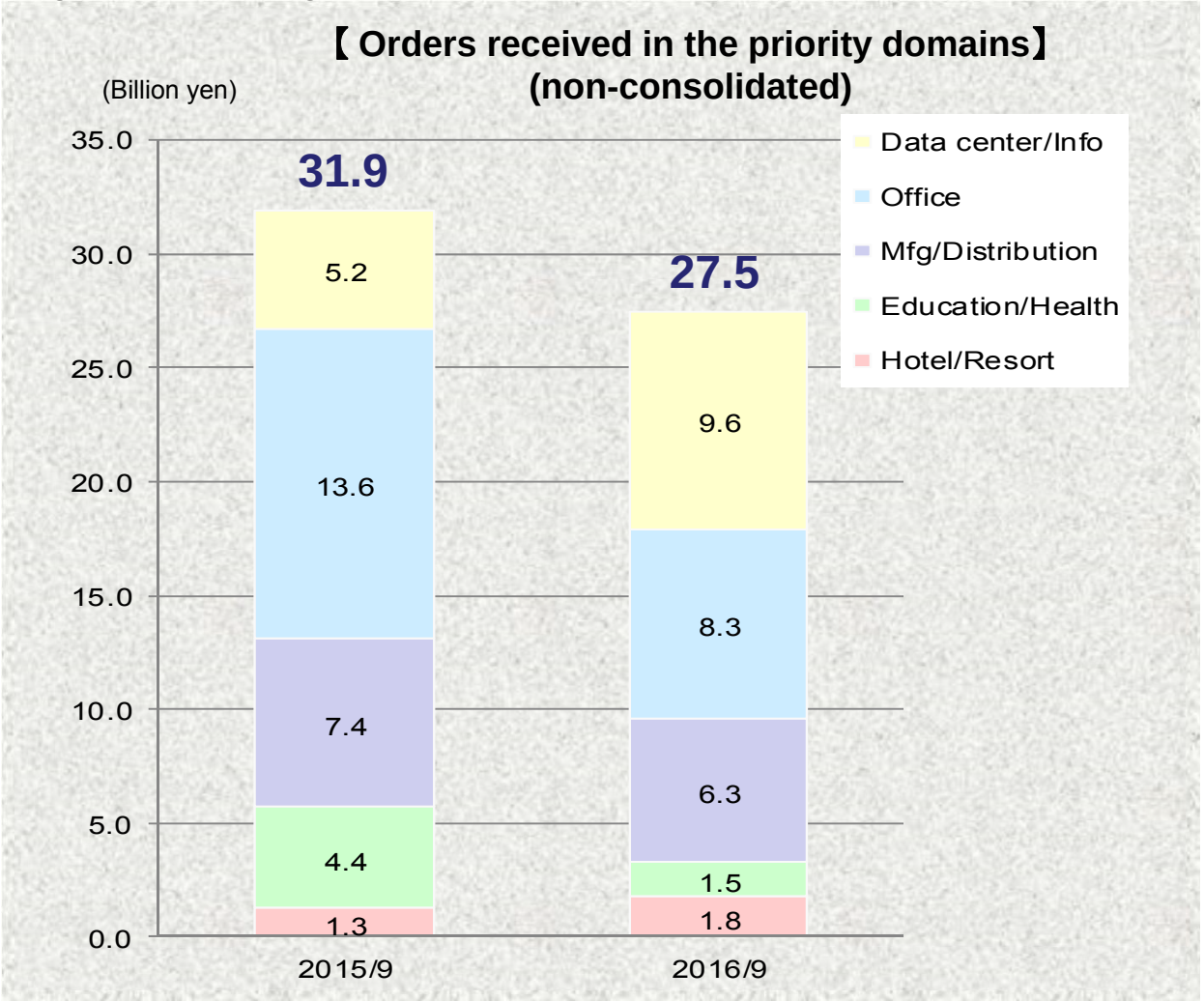
[Core Strategy] Life Cycle Total Solutions

(Reinforce solution-based sales activities)

- On course to achieve the FY3/17 target (non-consolidated) due to more emphasis on solutions and medium/long-term building maintenance proposals

【Priority Domains】

- **Data centers/ Information**
- **Office**
- **Manufacturing/ Distribution**
- **Education/Health care (Medical Welfare)**
- **Hotel/Resort**



[Core Strategy] Life Cycle Total Solutions

Life Cycle Total Solutions performance

Expand alliances (grow in a multitude of domains)

Technologies and advantages of the Hibiya Engineering Group

- ■Energy diagnosis technology
- ■Smart technology (BEMS, Smart-Save*1)
- ■BCP/safety/quality
- ■ Group includes manufacturing and a trading company

Alliances That Utilize Networks

NTT Group companies

Leasing companies

Hibiya Engineering Group

Hibiya Engineering
Hibiya Tsusho, Nikkei, HIT Engineering

Energy companies

Property management companies

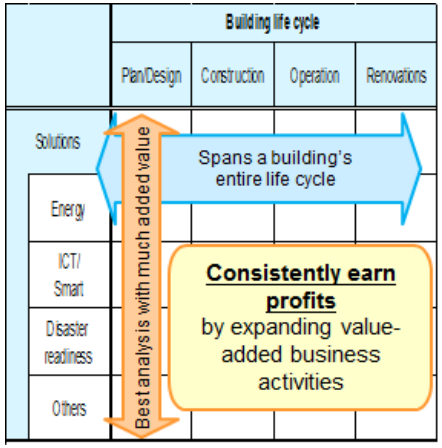
A new business model

More new customers

New business with current customers

Examples of Life Cycle Total Solutions Activities

- Many types of solutions using Hibiya Engineering technologies for hotel proposals and projects
- Use of Hibiya Engineering Group resources for EMS*2 projects; alliances with companies with operations involving energy
- Building life cycle proposals based on the Aging Equipment Diagnosis and other activities
- Medium/long-term key building maintenance proposals for NTT Group companies
- Collaboration with NTT Group companies



*1 An electricity load control unit developed by Hibiya Eng that automatically controls electricity use
*2 Energy Management System, measuring electricity use, temperature and humidity, and efficiently controlling air conditioning, lighting and other facilities.

[Core Strategy] Life Cycle Total Solutions (Examples)

1. Many types of solutions using our technologies for hotel proposals and projects

■ Newly-built

Four Seasons Hotel Kyoto

Tokyu Harvest Club

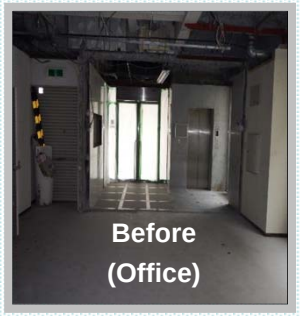
Kyoto Takagamine

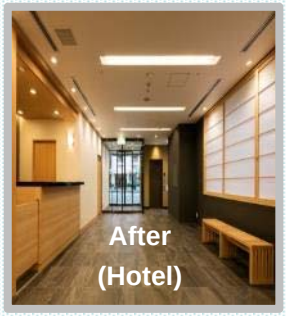
Atami Izusan

■ Conversion

Proposal using Hibiya Engineering renovation technologies for a large property management company

Accomplishments extending from office buildings and home appliance stores to hotels





■ Cogeneration*

(Yuinchi Hotel Nanjo)

Cogeneration system powered byproduct gas from a hot water spring

Hibiya Eng. and two other companies received the private-sector Special Award of the Cogeneration Awards for this project.

Separation unit

Gas tank/Control room

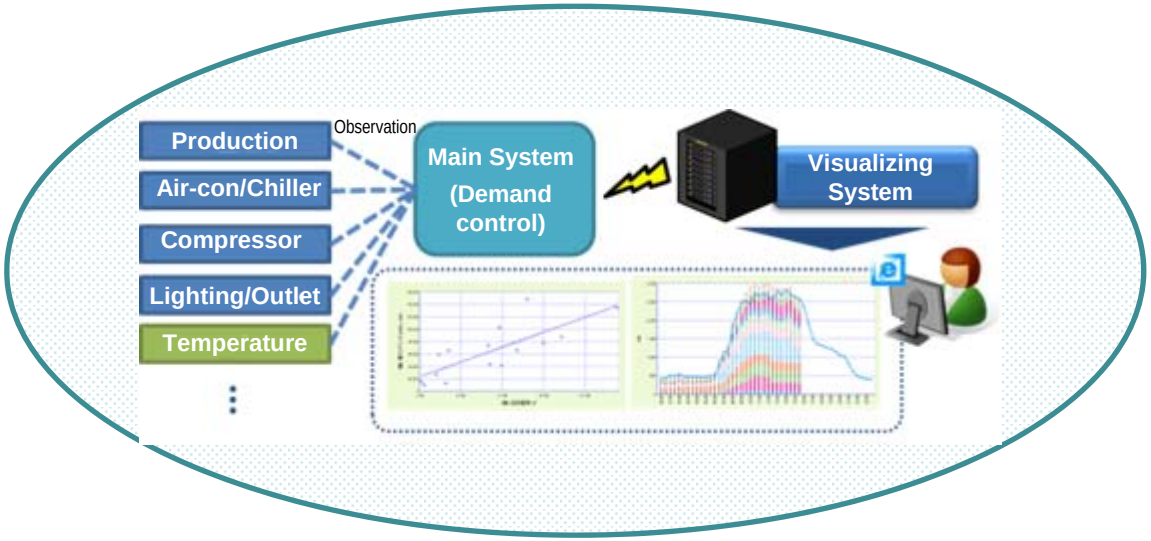
Generator

* Please refer page 17 for more details

[Core Strategy] Life Cycle Total Solutions (Examples)

2. Use of Hibiya Group resources for EMS projects; alliances with energy related companies

Energy Management System



Buildings of City A (City hall, welfare services, etc.)

Digital signage


City hall


Welfare services facility

- Energy management using EMS at six locations since 2013
- Visualization equipment for solar cells, solar equipment, storage batteries, signage and other facilities

Buildings of City B (City hall, gymnasium, etc.)


City (ward) hall


Gymnasium

- Energy management using EMS at 21 locations since 2013
- Cut electricity use more than 10% at these locations

Pharmaceutical Company A


Research center


Factory

- Energy management using EMS at nine locations
- Cut electricity use 10%

Pharmaceutical Company B


Factory

Energy conservation measures for a pharma plant

- EMS for manufacturing, climate control, lights and other facilities
- Cut electricity use 5%

[Core Strategy] Life Cycle Total Solutions (Examples)

3. Building life cycle proposals based on the Aging Equipment Diagnosis and other activities

■ Ideas for better renovations and repairs based on the Hibiya Engineering Aging Equipment Diagnosis service menu

Hospital A

Problems requiring solutions

- Building is 30 years old and last equipment update was more than 15 years ago
- Experienced maintenance personnel have left, resulting in inadequate data about the current condition of equipment
- Ideas from many companies but no knowledge about how to start a renovation project

Precise targeting of customer's requirements

Hibiya Engineering action

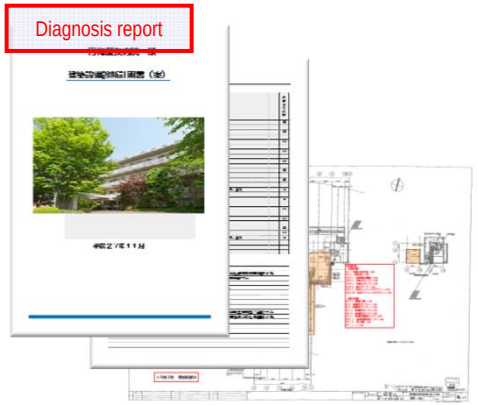
Aging Equipment Diagnosis service proposal

Building life cycle

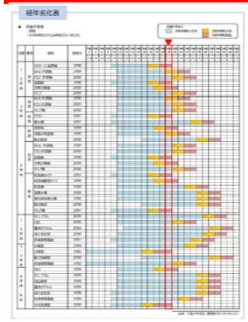
Plan/Examination/Consulting | Improvements | Maintenance oversight

Determination of condition → Selection and prioritization → Work plan → Renovation work → Maintenance, operations and improvements

Diagnosis report



Equipment age table



Project priority table

Proposal for medium/long-term plan

Aging equipment diagnosis

Support for hospital business plan

Aging equipment diagnosis for educational/medical institutions, etc.

[Core Strategy] Life Cycle Total Solutions (Examples)

4. Medium/long-term key building maintenance proposals for NTT Group companies

Life cycle library

Create equipment database

Use life cycle library*1

Building maintenance proposals

Ideas for key building medium/long-term maintenance by using Hibiya Engineering's many years of experience

- Building aging equipment diagnosis
- Survey to determine current condition of building equipment
- Timing and cost of building improvements

NTT Group companies

Hibiya Engineering Group

Establishment of data centers
Data center air conditioning, plumbing and sanitation, electrical work

Energy conservation/aging diagnosis
Use of ESCO to support energy conservation
Energy conservation assistance for private-sector companies

Eco town projects
Working with NTT Group companies at these projects

Use of renewable energy
Working with NTT Group companies to create proposals

Increasing use of bulk leases
Renovation projects for air conditioning and other systems

Security
Installation of flap barrier gates and card readers

ICT Smart
HA-BEMS*2 Smart-Save

Collaboration with the NTT Group

Sharing and combining technologies of Hibiya Engineering and the NTT Group

Collecting and sharing information – source of information and proposals

Extensive use of proposal-driven sales and the provision of information

Private sector
Public sector

NTT Group companies

- Data center construction, renewable energy, smart energy, equipment updates
- Renewable energy, construction
- Renewable energy, equipment leasing
- Sale of energy conservation products, use of subsidies
- Operation of public-sector buildings, security
- ICT smart

*1: A database containing intellectual property involving construction and other Hibiya Engineering Activities to enable this knowledge to be shared and used throughout the Hibiya Engineering Group.

*2: Please refer page 18 for more details

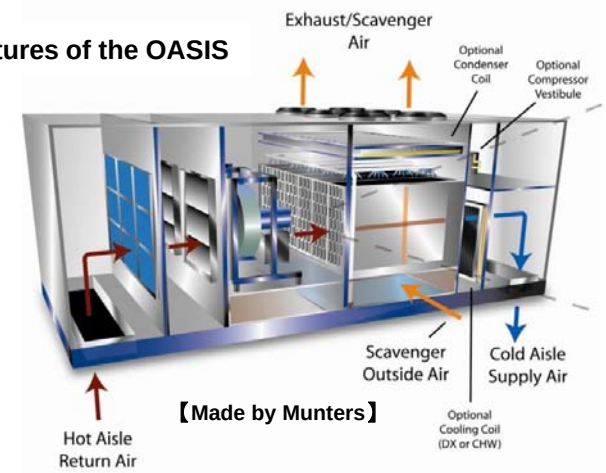
[Core Strategy] Upgrade solution technologies

➢ **Air conditioning technologies for data centers**

Advanced energy-efficient air-conditioning system

Indirect Evaporative Cooling System

Features of the OASIS



【Made by Munters】

Energy saving

The first use in Japan at an urban data center.
Designed and fabricated by Hibiya Engineering

Technology linked to overseas products for high thermal loads

Air-conditioning unit for high thermal loads

Features of the CyberAir 3

【Made by Stulz】

Central surveillance unit

Conversion

Compatible with many communication standards

Hibiya Eng's Smart-Save is used as the gateway

14% less space and 50% cut of electricity by highly efficient fan

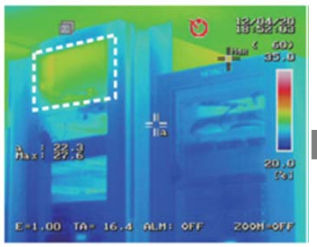
Advanced technology for data center air conditioning

◆ **Data center renovation technology**
- Extensive renovation experience including application conversions, upgrades at operating data centers and other projects

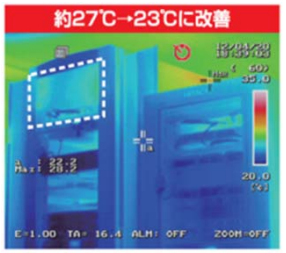
◆ **Data center operations optimization technology**
- Diagnosis technology using thermal flow simulations, thermal cameras and other techniques
- Operation improvement technology for the number of air-conditioning units, temperature setting and other items
- Air flow optimization using capping, rack blank panels and other techniques

◆ **Heat run tests and other commissioning technologies**
- After completion, the server room environment is evaluated by using a simulated heat source to create conditions similar to actual operations

(See page 20 of the reference materials for more information.)



Before



After

Benefit of inserting a blank panel

Expertise gained from experience

Hibiya Engineering's simulated heat source

[Core Strategy] Build a stronger foundation Confidence and safety (1)

Rigorous profit management, efficient installation work, higher quality

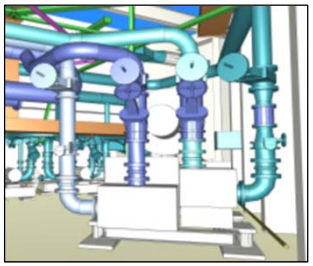
■ Improvement of profit management and more competitive prices

- ➢ Increase earnings by using tighter budget oversight at low-margin projects.
- ➢ Competitive cost of sales by using a purchasing center for procurement activities of all locations

■ More energy conservation and workplace efficiency

- ➢ Joint activities by subsidiaries and work sites to develop energy-saving equipment
- ➢ More actions to encourage partner companies to submit energy-saving ideas and use of feedback from outstanding energy conservation measures
- ➢ Use IT tools to increase efficiency at job sites
  - • Use tablets for jobsite checking and efficient storage of construction photos
  - • Use 3D scanners[*1] for more efficient job site examinations

Point cloud data



BIM model
Created by a 3D scanner

■ Improve quality by using zero-accident/zero-complaint reports

- ➢ Frequent use of zero-complaint reports (timely reports to management and sales personnel)
- ➢ Zero-accident/zero-complaint reports resulted in quickly passing on information to other departments
- ➢ (quickly prevent problems from reoccurring, quickly deal with similar complaints)
- ➢ Supplied “zero reports” in a timely manner to the safety management system[*2]
- ➢ Using an inspection service for creating ideas for improvements by viewing complaints as opportunities

A construction diagram on a tablet

*1: Please refer page 21 *2: Safety management tool developed by Hibiya Eng.

[Core Strategy] Build a stronger foundation Confidence and safety

A new look for the group's 50th anniversary to increase group solidarity

Logo

Square

Horizon

Uniforms

Use unified group management to improve efficiency

- Use ICT to do upgrade work processes (group-wide sharing of life cycle library, electronic approval system, etc.)
- Reexamine business processes, such as by eliminating invoicing for transactions between group companies, to make operations more powerful

Strengthen training programs and employee skills

- Expand and upgrade training programs (group rotations for new employees, more training to receive official certifications, etc.)
- Use an action plan to make greater use of women (establish recruiting policies and career plans, follow-up interviews for women taking time off for a new child, etc.)
- Expand training facilities in association with the relocation of the safety training center to Haneda (install air-conditioning units for data centers, etc.)

Increased commitments to CSR and compliance

- Establish a Legal Affairs Office to reinforce oversight for reducing contract risk, etc.
- Reinforce management of credit and receivables by improving functions of the core IT system

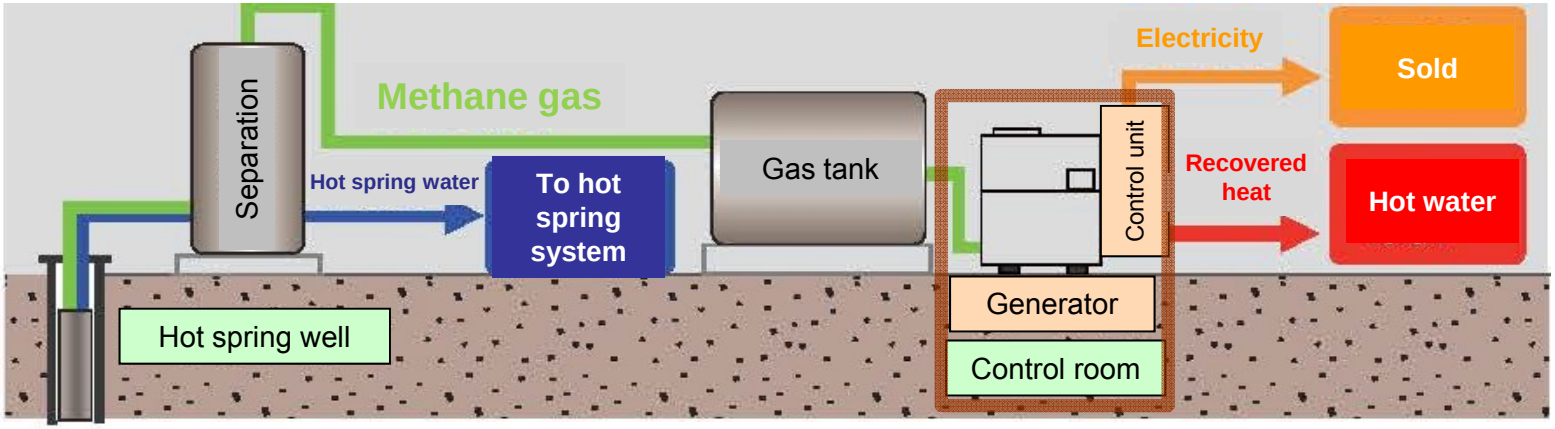

Reference

【 Reference】

Natural Gas Cogeneration System

This system uses natural gas to supply electricity and hot water.

- Natural gas is separated from hot spring water, processed and stored to power the generator.
- The electricity is sold to reduce the amount of power purchased.
- Heat recovered from power generation is used to produce hot water, which cuts the cost of fuel.



- With an energy efficiency of more than 80%, a gas cogeneration system is an environmentally responsible technology that greatly lowers wasted energy compared with the conventional generation of electricity.

【Reference】

HA(Hibiya-Active)-BEMS

HA-BEMS (Hibiya-Active Building Energy Management System)

Uses ICT to measure a building's electricity use, humidity and temperature as well as efficiently control climate control, lights and other items.

Why choose HA-BEMS?

Provides visualization along with **outstanding control functions** in association with Smart-Save

Use HA-BEMS to cut electricity use automatically

Makes conserving energy easy!

Advantages for customers

- Lower operating expenses
- A comfortable interior environment
- Uses energy visualization to make everyone aware of energy use

Features of HA-BEMS

- Detailed control functions by working with Smart-Save
- Compatible with many types of buildings
- Controls air conditioning and other equipment of any manufacturer

HA-BEMS

The next step in smart power conservation

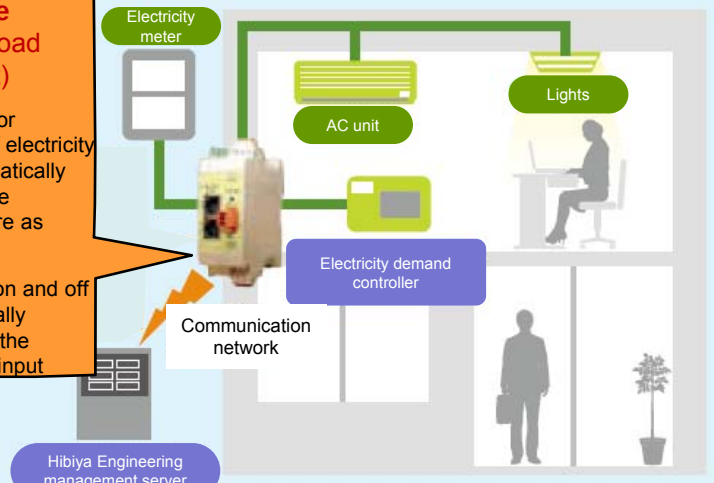
Visualization of energy use

+

Active control for smart energy conservation

Smart-Save (electricity load control unit)

- Watches for overuse of electricity and automatically controls the temperature as needed
- Switches on and off automatically based on the schedule input



【 Reference】

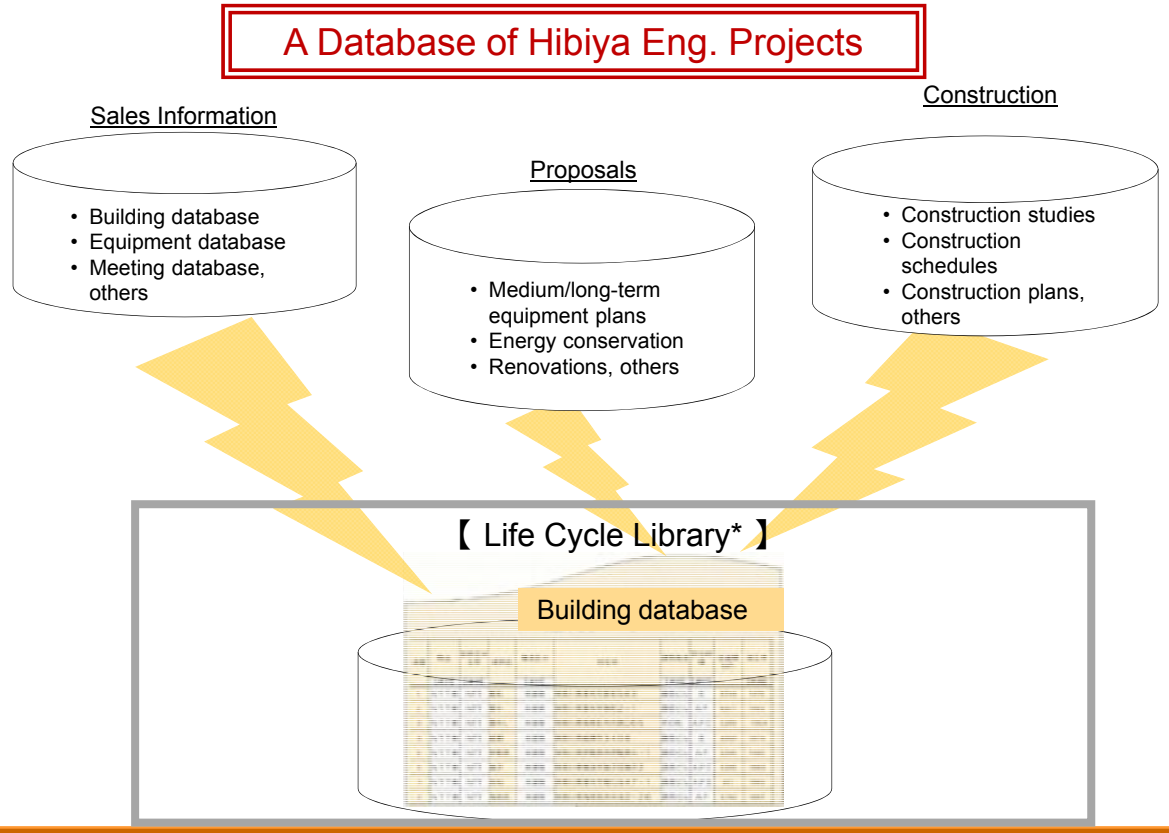
The Life Cycle Library

Life cycle total solution ideas for the NTT Group

Hibiya Engineering strengths

- Superior technologies, including for use of existing facilities
- Much experience with communication facilities
- Skill in determining a building's life cycle
- Fast follow-up sales after completion

To create the best possible solution proposals



Better proposals by sharing information and knowledge!

*A database containing intellectual property involving construction and other Hibiya Engineering Activities to enable this knowledge to be shared and used throughout the Hibiya Engineering Group.

【 Reference】

Heat run test for Data Center

The heat run test – A preliminary load testing under actual conditions to improve reliability

Prior to completion, an environmental evaluation was performed by producing the environmental conditions of the server room where the system will be installed.

- Conditions similar to the actual environment were created by generating a thermal load equivalent to heat produced by servers.
- The mock heat source developed by Hibiya Engineering can produce the same amount of heat as actual servers do. The heat level can be adjusted easily.
- Capable of testing a 420kW thermal load, the highest level in Japan

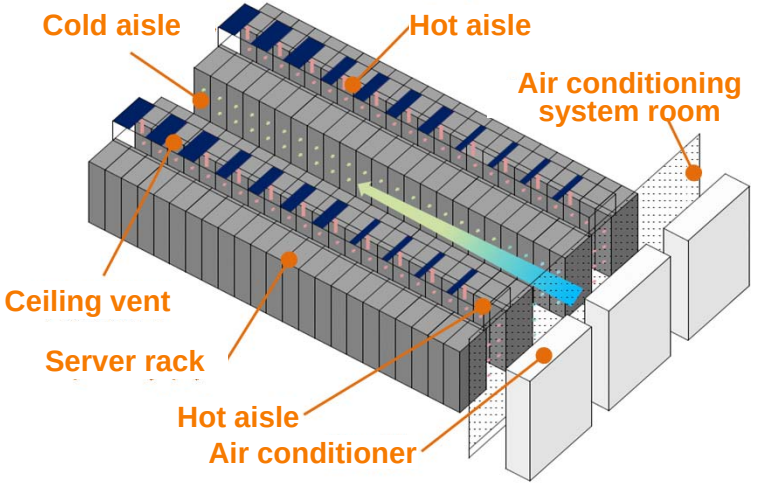
The heat run testing process

Plan
- Determine the verification method
- Create a plan and implementation outline

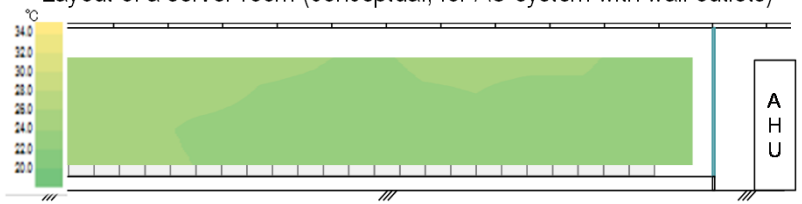
Test
- Perform confirmations using the designated procedure
- People can observe the test

Report
- Report of test results
- Proposals for how to operate the system

Mock heat generation unit in a server rack (made by Nikkei)



Layout of a server room (conceptual, for AC system with wall outlets)



Vertical temperature distribution at center of central cold aisle

【Reference】

3D Scanners

Use state-of-the-art technology (3D scanners) for more technological advances

A Faro Focus3D high-speed 3D laser scanner

【Use 3D scanners】

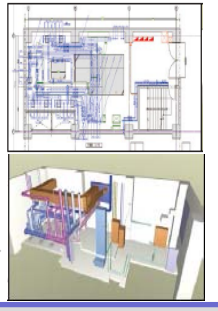
Acquire project site data

Transform image data to CAD

Step 1
■Scan the project site

Step 2
■Convert image data to point cloud data

Step 3
■ Use point cloud data for CAD and 3D models of diagrams



【Advantages】

- Reduces number of people and time needed to perform jobsite surveys
- Improves the safety of jobsite surveys
- Increases the accuracy of construction drawings
- Produces CAD and 3D models quickly

Started using this method as a support system for project site surveys

【Use of 3D scanners】 (2011 to 2015 1H)

Used mainly in the following locations

NTT Group	Educational institutions	Hotels	Factories

Number of projects

Construction support (about 40 projects)
[NTT Group buildings, historic structures, hotels, schools, gymnasiums, others]

Maintenance support (about 55 projects)
[NTT Group buildings, historic structures, hotels, schools, gymnasiums, others]

Utilizing this technique as much as possible as a renovation technology

[Reference]

Solar Hybrid System

■ Joint demonstration test of solar hybrid system with NTT Facilities

Advantages

- Solar energy comprehensive conversation rate of more than 40%
- Reduction in power generation loss caused by high temperature of solar cells
- Supplies both electricity and hot water
- Uses less roof space by combining power generation and heat collection in a single panel

Installation Record

Location: Apartment buildings in Tokyo
Hibiya Engineering and two other companies were selected by Japan's Ministry of the Environment to perform a demonstration project for the development of inductive technology that further cuts CO_2 emissions

Location: Dormitory for single employees
System was installed when the dormitory was constructed.

[Major applications]

Health care facilities
(senior/nursing care facilities, hospitals)

Restaurants
(suburban and roadside locations)

Residential buildings
(houses and apartment buildings)

[Solar hybrid systems]

Solar hybrid panels are similar to photovoltaic panels.

Solar heat collection units are placed under the photovoltaic panels.

【Reference】

Services and Technologies of Hibiya Engineering Group

Hibiya Tsusho — Trading company

Reuse of recovered chlorofluorocarbons (CFCs)

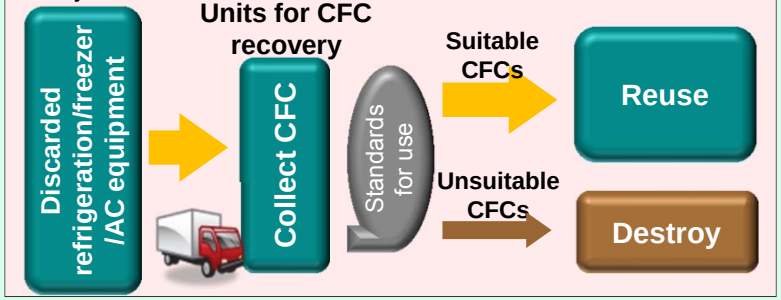
Highlights of processing CFCs for reuse

- ◆Little energy needed for reuse of CFCs
- ◆Minimal release of CO_2 during processing
- ◆Less expensive than destroying CFCs
- ◆Processing produces little industrial waste
- ◆Recovered CFCs can be used effectively

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_2 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.

Damper with high-pressure blower

- ► Unitized high-pressure blower, damper and connection duct
- ► Cuts amount of labor required at the jobsite

Environmentally responsible support brackets

- ► Used to suspend air conditioning systems
- ► Lighter than conventional brackets and less costly to transport

Mini-balcony unit

- ► Decorative duct cover for an apartment building balcony
- ► Combines air supply, refrigerant and drain pipes for compact placement

【Reference】

The NASCA Security System

■An embedded contact-free IC card reader for simplicity with outstanding performance

Advantages of the contact-free IC card reader

- Compact size and ability to connect with two switch boxes
- Semi-transparent LCD panel with antenna on the back
- A multi-card reader compatible with ISO14443 type A and B cards and FeliCa cards
- Audio guidance and error detection
- Touch-panel display with three-color backlight for a variety of images
- Can be customized to display English and pictures
- Easy to operate and includes a sensor to conserve energy when not in use

Features of the NASCA security system

Flexible system construction to match the size of the application

Can create a room access security system with many functions

Also compatible with many authorization devices, elevator floor access and other functions

A variety of system settings to match many operating methods

【Reference】

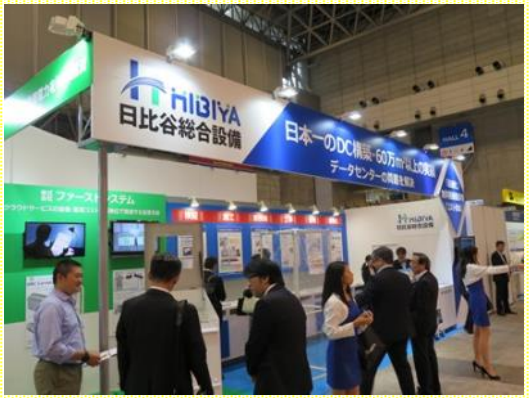
Hibiya Engineering at Trade Shows

Food Factory 2016
(at Tokyo Big Sight)

Products/information presented

- Experience with construction of food/beverage factories
- Wastewater treatment system
- Hibiya business continuity planning package
- Factory surveillance and management system (Nikkei)
- Cleanware for food factories (HIT Engineering)

Data Center Expo (Autumn)
(at Makuhari Messe)



Products/information presented

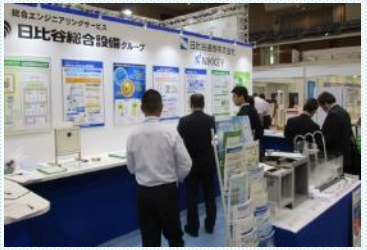
- Hibiya Engineering renovation skills
- Hibiya Engineering optimization technologies
- Air conditioning technology for PUE1.1x
- Hibiya Engineering hot/cold separation technology
- Hibiya Engineering heat run testing
- Data center using external air AC system and groundwater

Messe Nagoya 2016

A large event with attendance of more than 60,000

Hibiya Engineering displayed its building facility report and diagnosis service.

Business Show & Eco Fair 2016



The largest business fair in Kyushu

As this event followed the Kumamoto earthquake, Hibiya Engineering displayed its business continuity planning services and energy-conservation products.

Business Expo Hokkaido

A single booth was used by all Hibiya Group companies.

Visitors filled out questionnaires and were contacted afterward by salespeople.

時代にまっすぐ、技術にまじめです。

Earnings Announcement for the First Half of FY3/17

Hibiya Engineering, Ltd.

November 21, 2016