Infrastructure Systems Business Strategy

Infrastructure Systems Company
Hitachi Plant Technologies, Ltd.
Hitachi Industrial Equipment Systems Co., Ltd.

Hitachi IR Day 2012

June 14, 2012

Yutaka Saito
Senior Vice President and Executive Officer,
President & CEO, Infrastructure Systems Group,
President & CEO, Infrastructure Systems Company,
Hitachi, Ltd.

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Infrastructure Systems Business Strategy

Contents

1-1 Infrastructure Systems Business Concept

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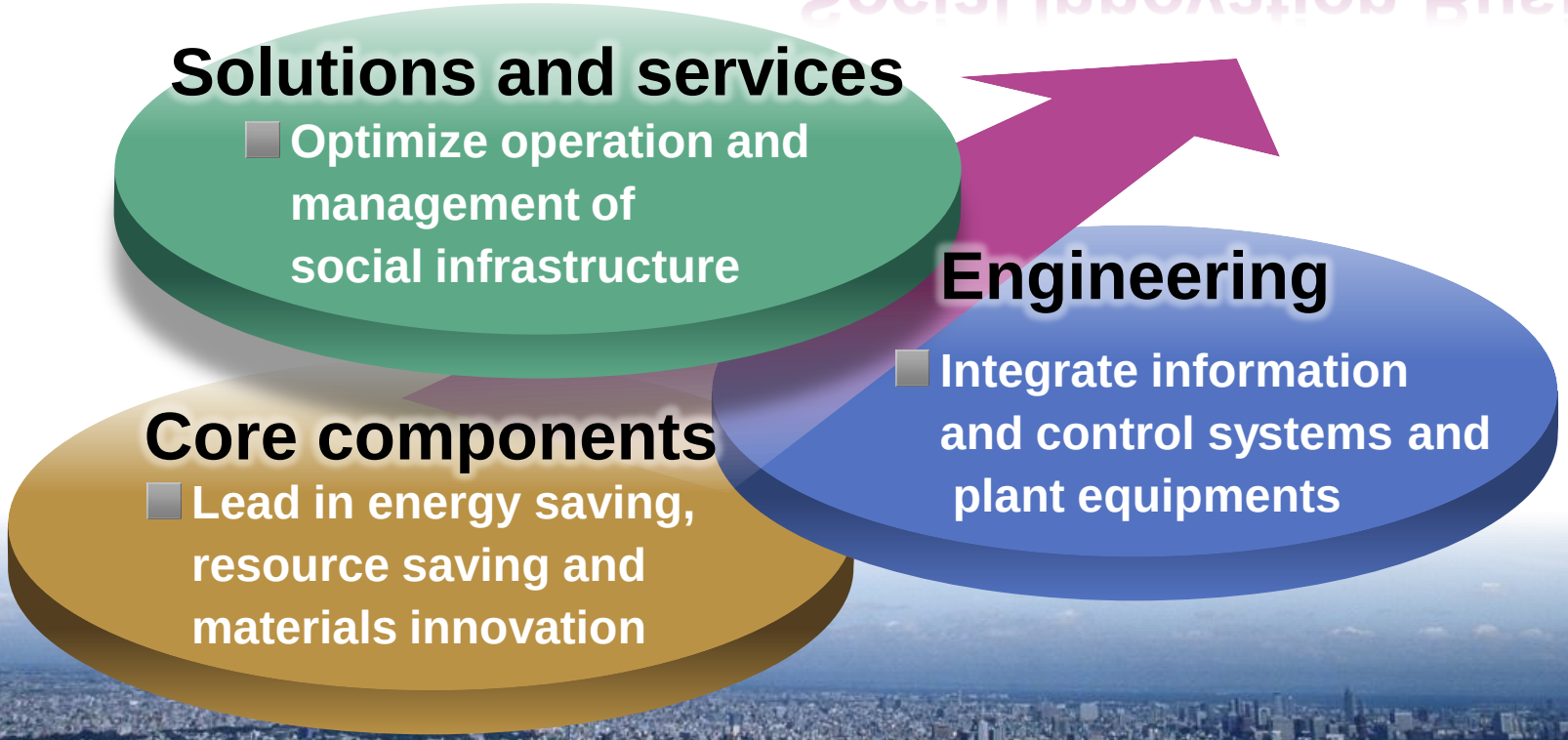
**Drive Social Innovation Business,
which provides social infrastructures supported
by highly efficient and highly reliable IT technology**

Social Innovation Business



1-2 Business Domains of Infrastructure Systems

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Provide total solutions globally for social infrastructure

Infrastructure solutions business		Plant systems business		
Smart cities	Smart grids Smart mobility Intelligent water systems	Water treatment	Oil & gas	Chemical plants
		Transportation	Electric control systems for steel plants	

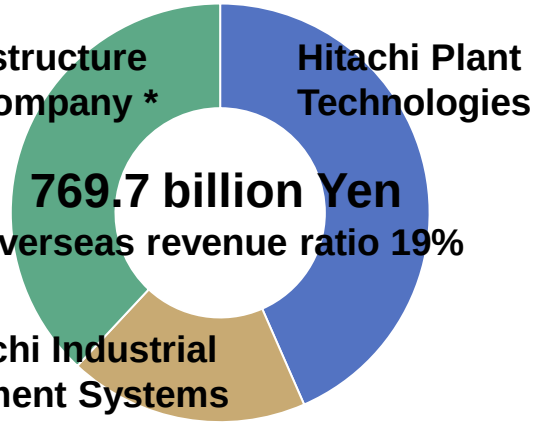
Solutions and services

Information systems

Engineering

Monitoring control systems

FY2011



Operation and services

Design and construction

Components

Power distribution systems

Controllers

Inverters

Motors

Compressors

Large-sized components

Components business

*The Infrastructure Systems Company was established in April 2012 by reorganizing the former Information & Control Systems Company, the former Social & Industrial Infrastructure Systems Company and Hitachi Plant Technologies
A certain amount of revenues of the Infrastructure Systems Company are included in the Information & Telecommunication Systems Company, the Power Systems Company and the Rail Systems Company

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Contents

2-1 Market Trends—Expectations for Social Infrastructure

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Societies experience simultaneously upgrading social infrastructure and developing large-scale urban and industrial areas

Issues of Social Infrastructure

Developed countries

- Aging society
- Old infrastructure

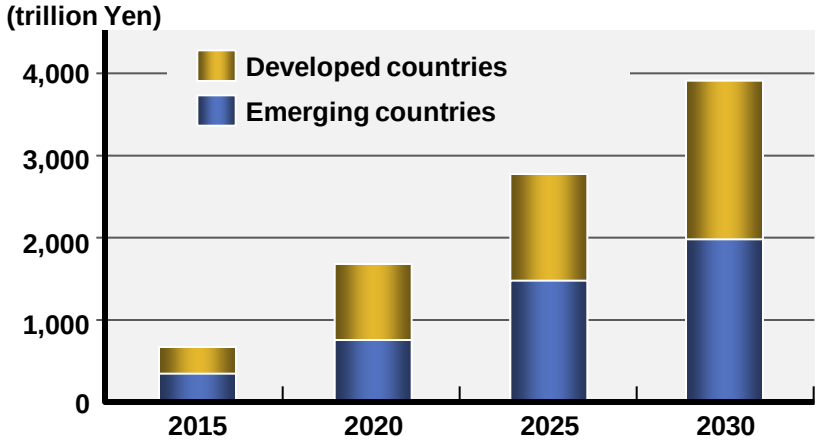
Emerging countries

- Increasing urban populations
- Infrastructure investment

- Resource, energy and water shortages
- CO_2 emissions increase

Global Smart City Market Forecasts(cumulative)

Source: Comprehensive Guide to Smart Cities of the World, Nikkei BP



- **Upgrading of social infrastructure in developed countries (e.g. Smart cities)**
- **Large-scale urban development and construction of power, water and industrial plants in emerging countries**

2-2 Ideal Social Infrastructure

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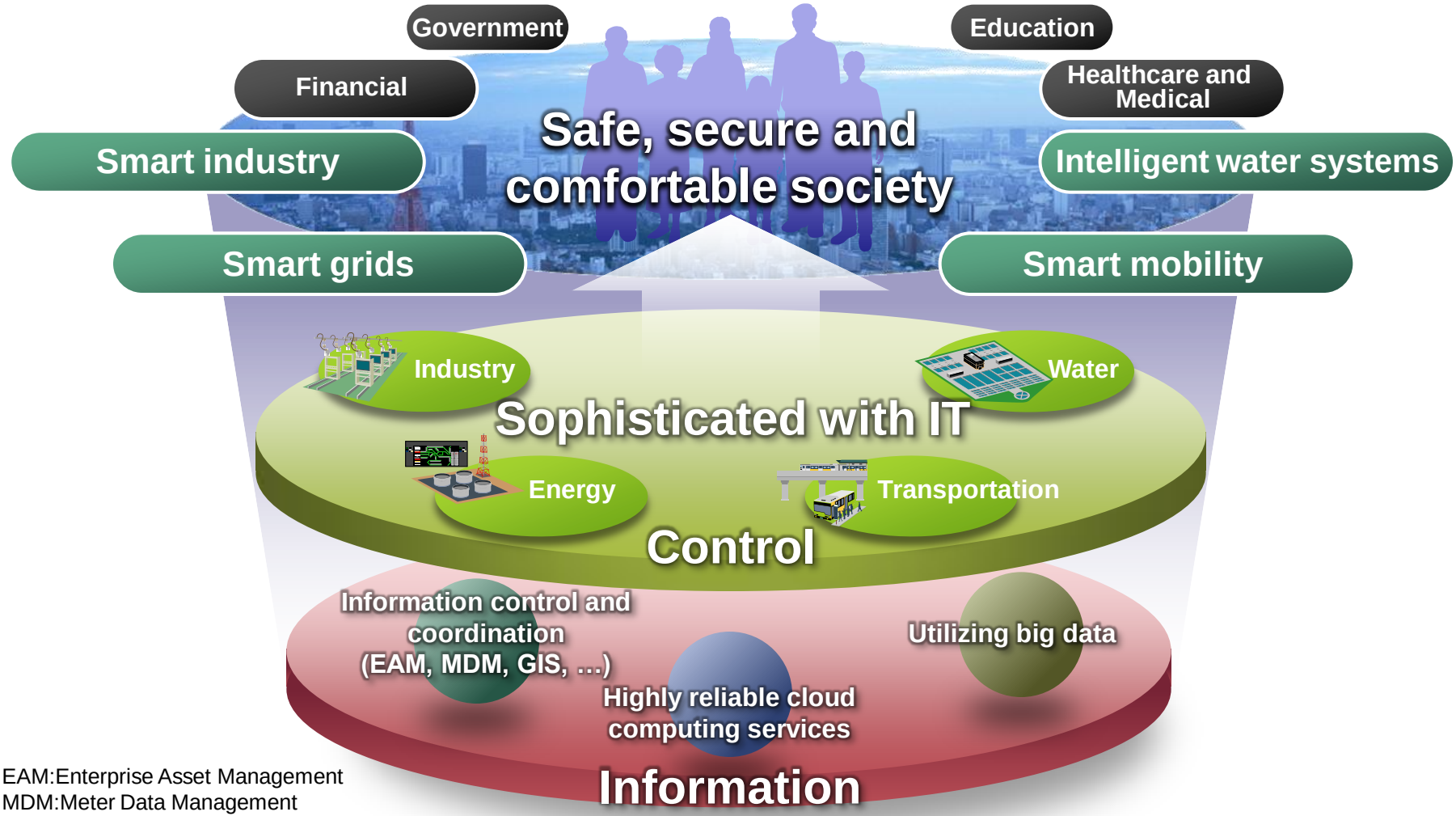
Realization of ecological friendly, safe, secure and comfortable society

~fusing knowledge and experience of information, control and infrastructure business~



EAM:Enterprise Asset Management
MDM:Meter Data Management
GIS:Geographic Information System

2-3 Competitive Environment

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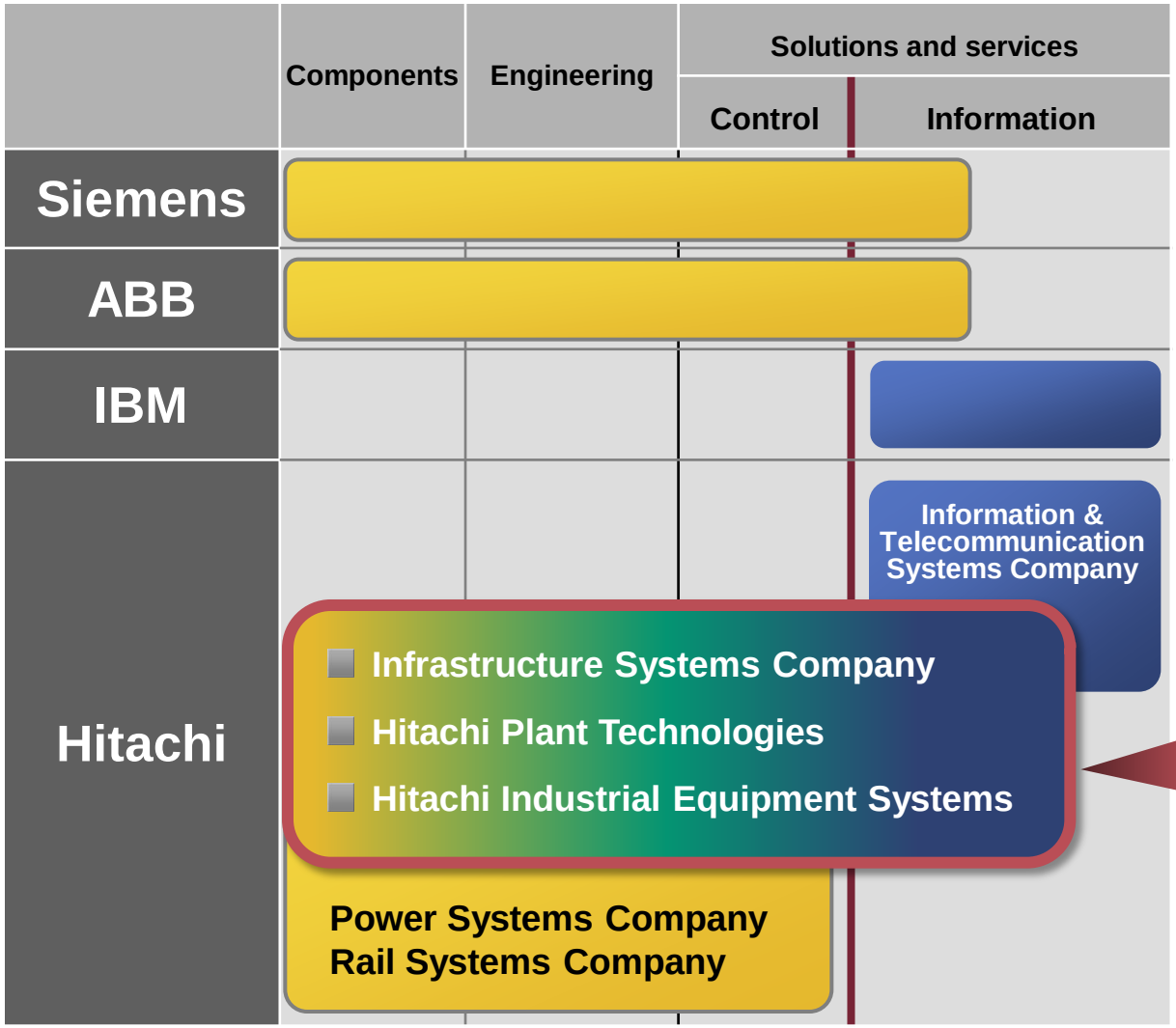
Provide total solutions fusing knowledge of IT and social infrastructure



- Collaborating Hitachi Groups in a wide range of business fields
- The three companies are working together to provide one-stop total solutions by fusing knowledge of IT and social infrastructure

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Contents

3-1 Business Policy and Growth Strategy

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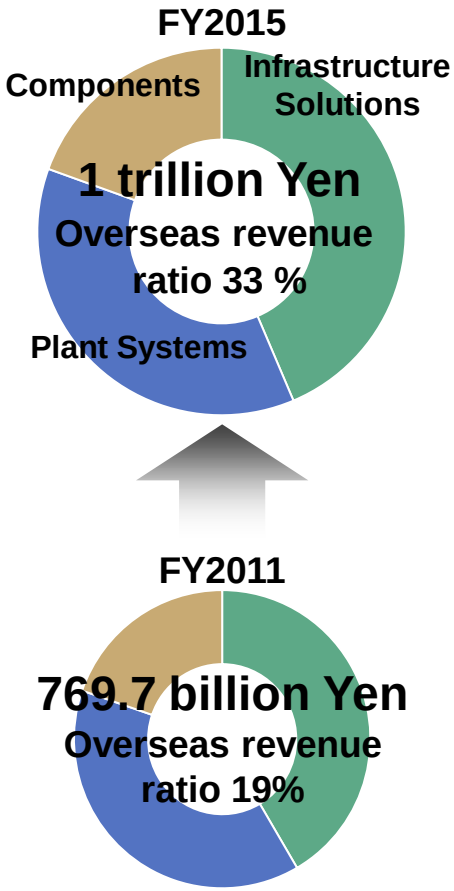
Globally provide total solutions, including operation services, by making intelligent use of IT

Growth Strategy	
Infrastructure Solutions Business	■ Provide optimized solutions and services for the supply and demand of energy ■ Develop the business field of the smart city, including water treatment and mobility through developing new solutions and conducting demonstrations
Plant Systems Business	■ Pursue turnkey solutions, which including operation and services (Sea water desalination, industrial plants) ■ Enter growth fields through leveraging core technologies and components (Oil & gas, electric control systems for steel plants) ■ Provide plant information systems for supporting operation and management
Components Business	■ Strengthen product lineup of high reliability, high-speed and great capacity ■ Strengthen top-runner products for saving energy and resources



Strengthen business base
(Invest in key development areas and pursue the Hitachi Smart Transformation Project)

3-2 Infrastructure Solutions Business

Infrastructure Solutions

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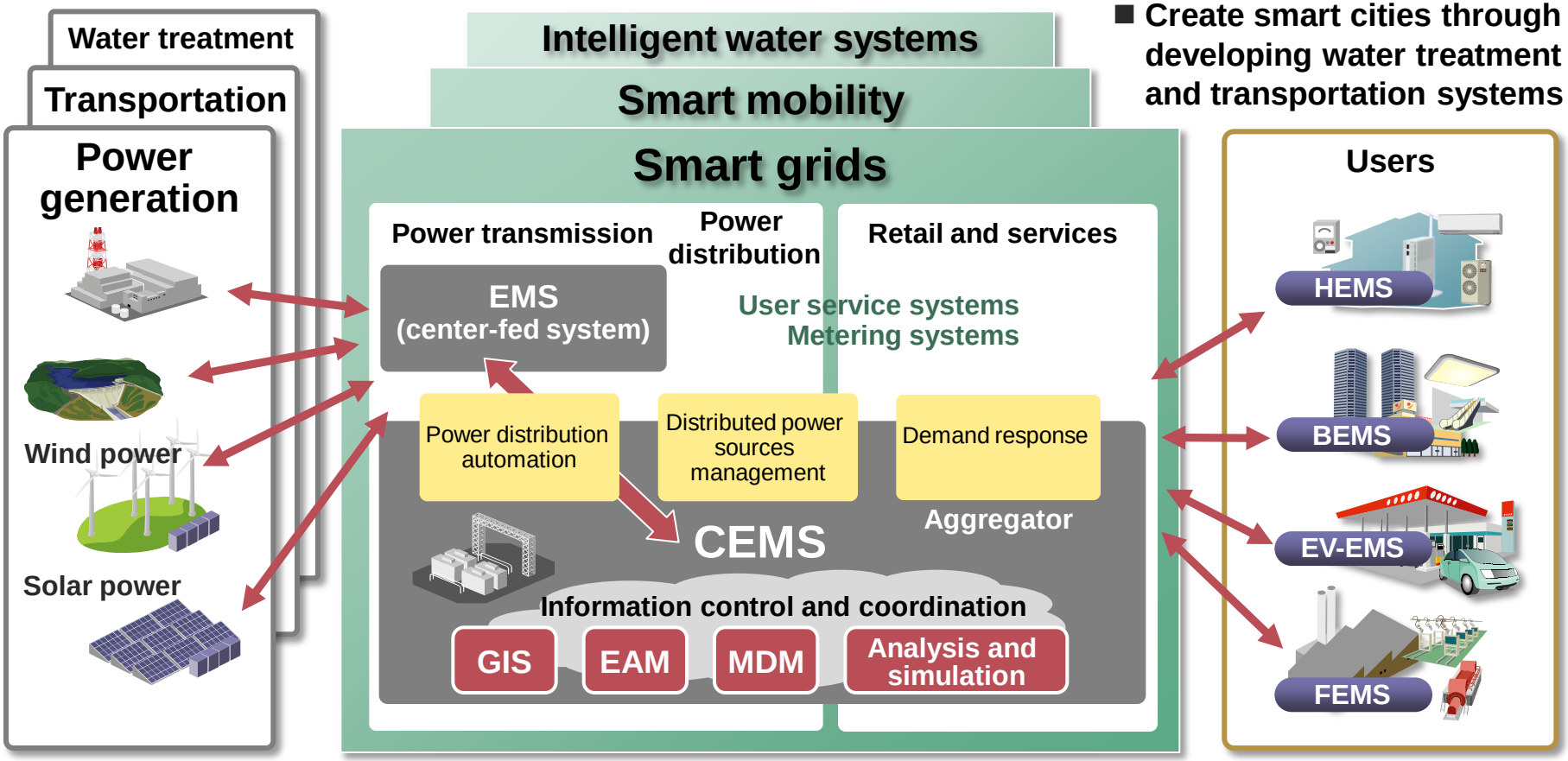
Provide next-generation solutions and services that connect social infrastructure and people with IT

■ **Create smart cities through developing water treatment and transportation systems**



■ **Provide highly reliable control systems to ensure stable supply of electricity**

■ **Offer energy management solutions and services by utilizing advanced IT**

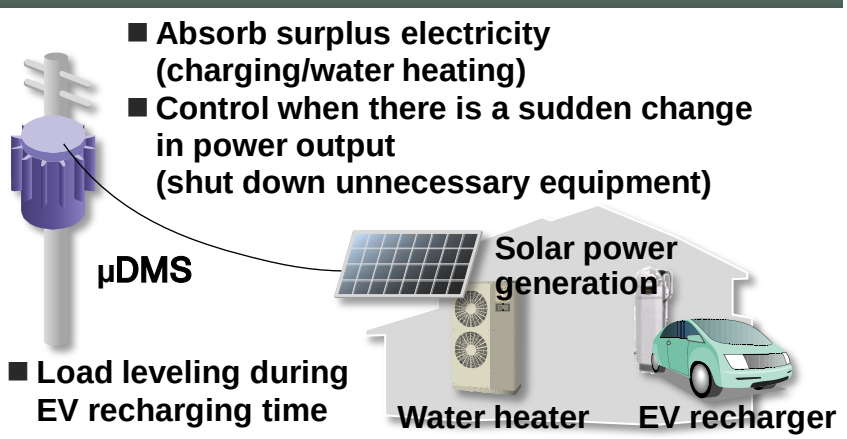
EMS:Energy Management System, CEMS：Community Energy Management System, EV:Electric Vehicle,
HEMS:Home Energy Management System , BEMS:Building Energy Management System , FEMS:Factory Energy Management System

Establish demand response (DR) business model to optimize power supply and demand

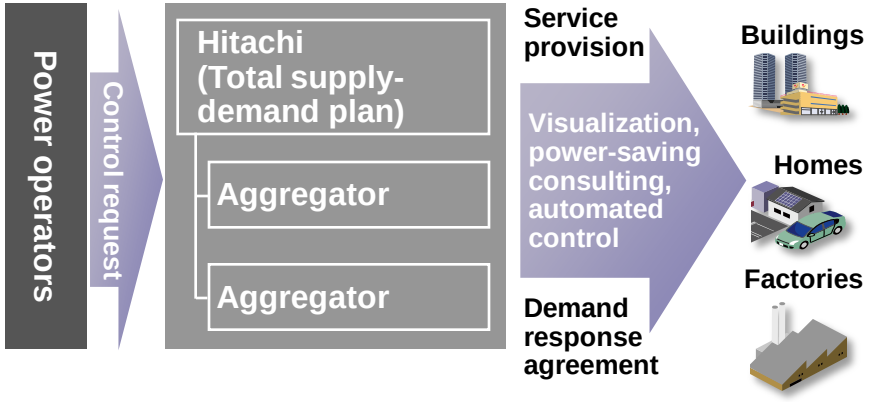
- **Testing DR technology at smart grids demonstration project in Hawaii (November 2011 to March 2015)**
  - Optimize the energy supply-demand balance assuming widespread use of renewable energy
  - Direct control of users' equipment based on contracts
- **Create an aggregator business model through collaboration with power operators and partners**
  - BEMS aggregator business (adopted by the METI in April 2012)
  - TEPCO/Peak demand restriction business plan (Signed in May 2012)

Develop total solutions business extending from supply-demand management systems to services

DR through direct control in Hawaii



Aggregator business scheme



DR:Demand Response, DMS:Distribution Management System
aggregator:Operator providing energy-saving services by getting power consumption

Establish a distributed energy management system with the aim of locally generating electricity and heat for local consumption

- **Joint feasibility study business for Sino-Singapore Tianjin Eco-City**
  - METI feasibility study for promoting infrastructure-related system exports (October 2011 to March 2013)
  - Locally generate electricity and heat energy for local consumption by making full use of distributed renewable energy (solar power, biogas)

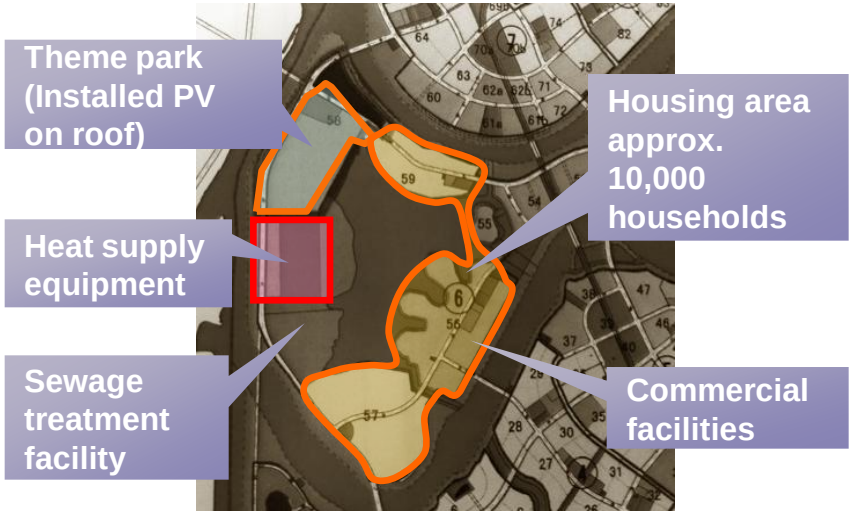
- The Japan Research Institute: total coordination
- Hitachi: supply-demand management, sophisticated demand control system investigation (CEMS)
- Mitsubishi Heavy Industries: supply-side system investigation

Develop an energy management business of both electricity and heat supply for cities and industrial zones

Achievements at Sino-Singapore Tianjin Eco-City

- Introduced HEMS system (Stage 1 : 450 homes/to March 2012)
- Provided battery storage system for micro grids demonstration by Tianjin Electric Power Corporation (60 kWh/September 2011)

Sino-Singapore Tianjin Eco-City stage 5 development area



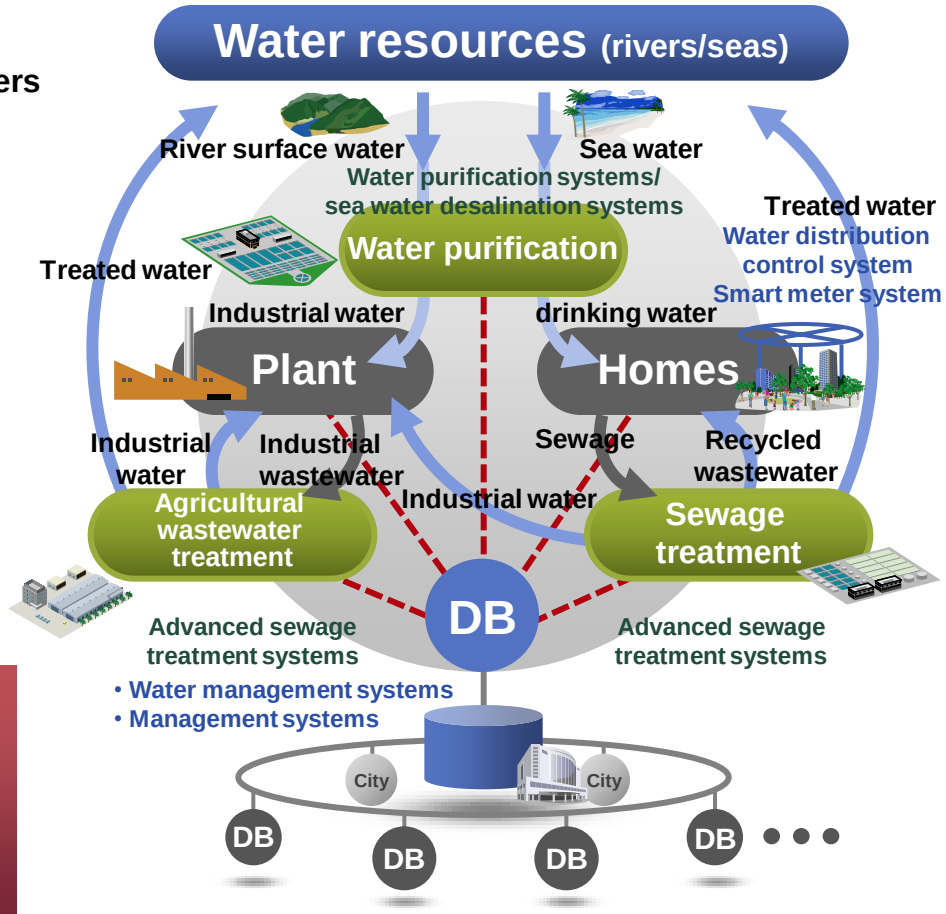
- Utilizing various distributed energy sources

Intelligent water systems for effectively using water resources and improving management efficiency

- **Effectively use treated water for reuse**
- **Optimize management of water resources**
  - Devise comprehensive plans taking into account matters such as water demand, energy saving, cost and environmental impact
  - Utilize the buffer function of reservoirs and the flexibility within water distribution systems
- **Wide-area management**
  - Create network for multiple regions and cities
  - Realize wide-area water management

Make proposals to improve efficiency of water businesses in Japan and globally expand the water environment solutions
(Smart community business centered on Dahej sea water desalination project and Maldives water management business)

Application model for intelligent water systems



3-2 Realizing Smart Cities

Infrastructure Solutions

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Contribute to the creation of safe and secure cities, especially in regard to energy and mobility

Promote demonstration projects

EV bus operation model project (April 2012 to March 2013)

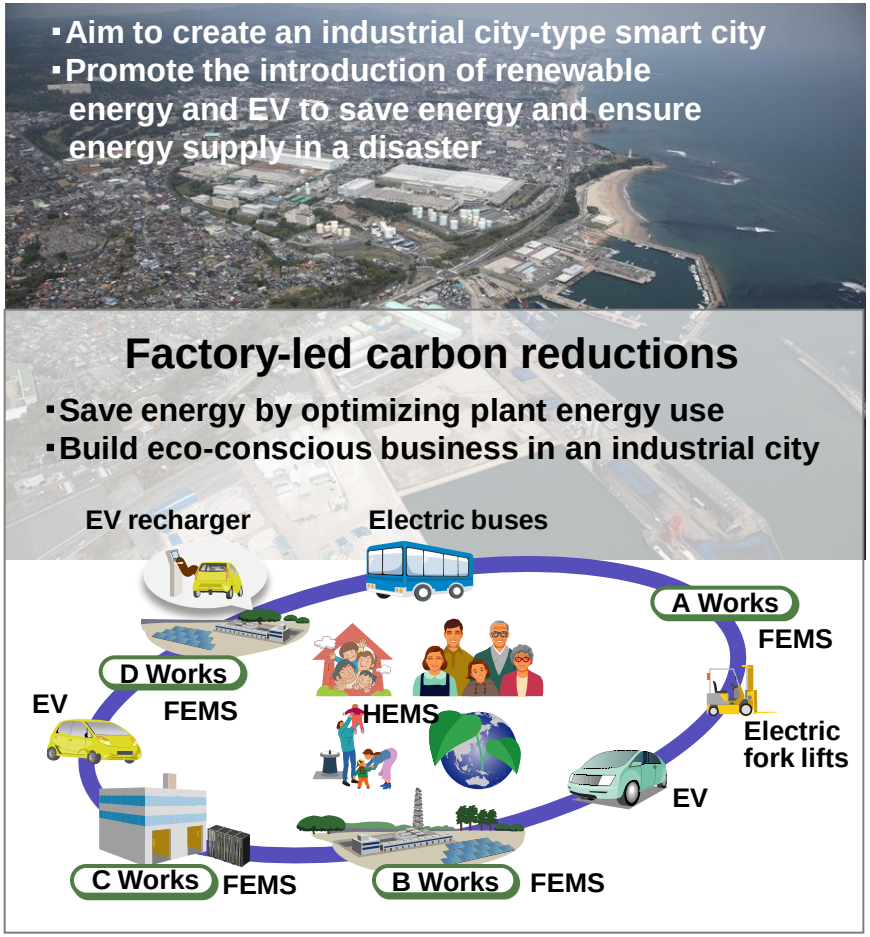
- Test runs in city with help of Hino Motors and others
- Testing of recharging and operation and management systems
- Adoption of inductive power supply system

Omika distributed EMS demonstration project (Start of 1st phase from July 2012)

- Demonstrate systems to accommodate electricity between hypothetical communities built between works

Realize safe and secure cities with low carbon emissions and that are resilient to disasters. Develop smart city business.

Hitachi City future city model project



3-3 Plant Systems Business

Plant systems

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Provide total solutions leveraging IT, services, core technologies and components

Services

Business operation

Operation & maintenance

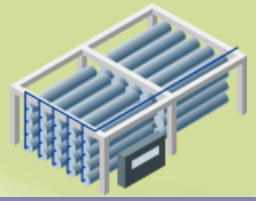
- **Pursue total solutions business, including operation and services**
  - Sea water desalination, reused water
  - Water and sewage and wastewater treatment
  - Total construction and services for overseas industrial plants

Maintenance support systems

IT systems

- **Provide plant information systems for supporting operations and management**
  - Plant EAM
  - Knowledge management
  - Operation automation

Systems & EPC

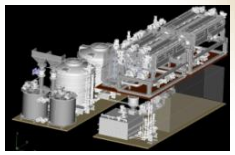


Sea water desalination plants

Process compressors

Components

Oily water-treatment facilities



Components

- **Expand growth fields leveraging core technologies and components**
  - Oil & gas (offshore plants, LNG plants)
  - Electric control systems for steel plants (hot-rolled)

EPC:Engineering Procurement & Construction
Oily water: Groundwater mixed with crude oil, and water injected into oil fields to extract crude oil

3-3 Providing Plant Turnkey Solutions

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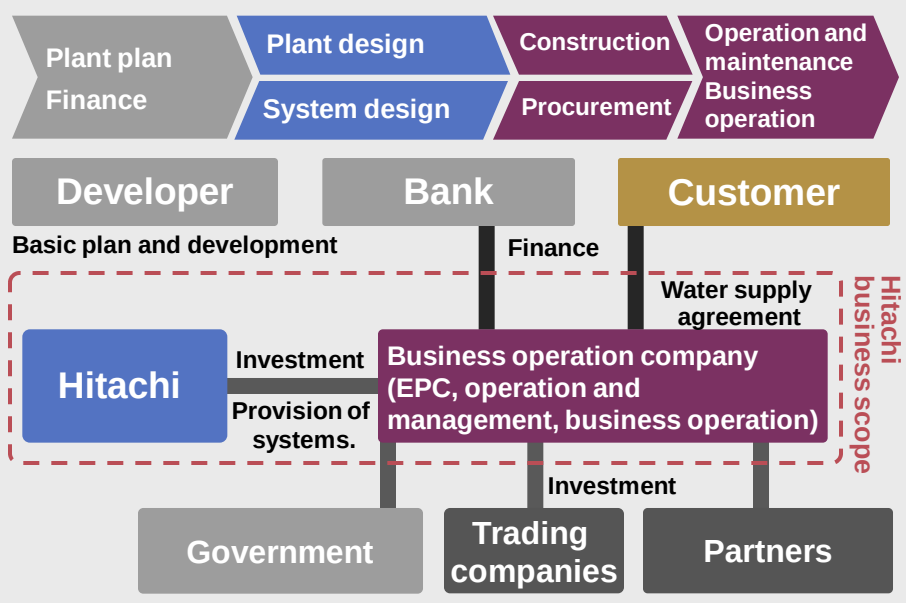
Develop the water business globally, including operations and services, as a “Japanese water major”

Business operation consortium model

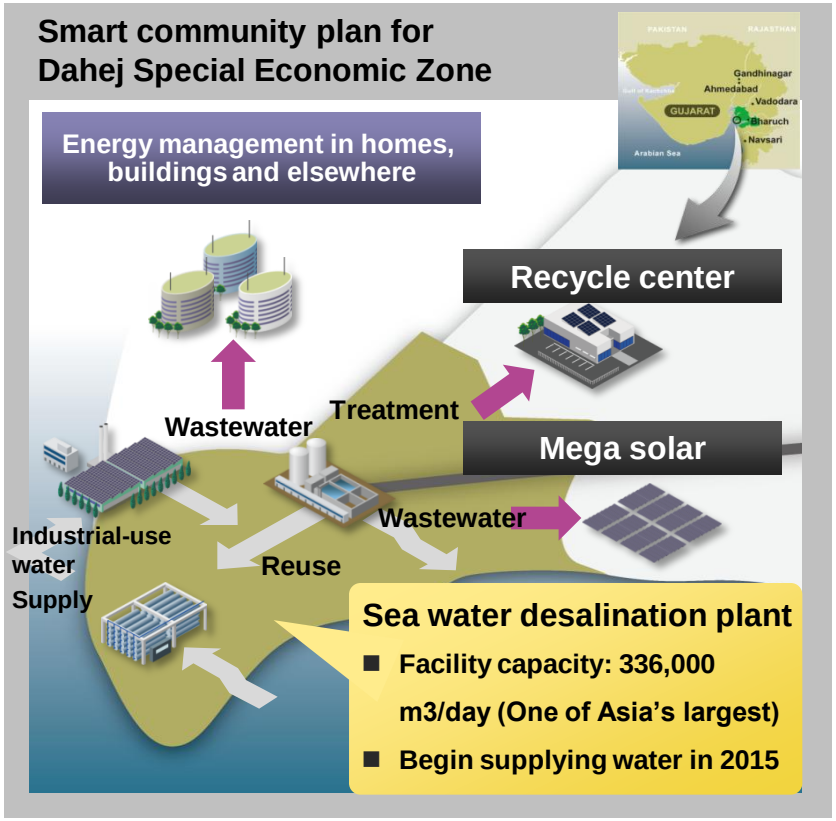
- Develop a comprehensive water treatment business by totally providing systems, EPC to operations and maintenance, and business operation



Use the Dahej sea water desalination business as a model for promoting business in India and other emerging countries

India: Dahej sea water desalination business

- Plan to establish a business operation company in conjunction with ITOCHU and Hyflux in Singapore.



Expand in Growth Fields Leveraging Core Components

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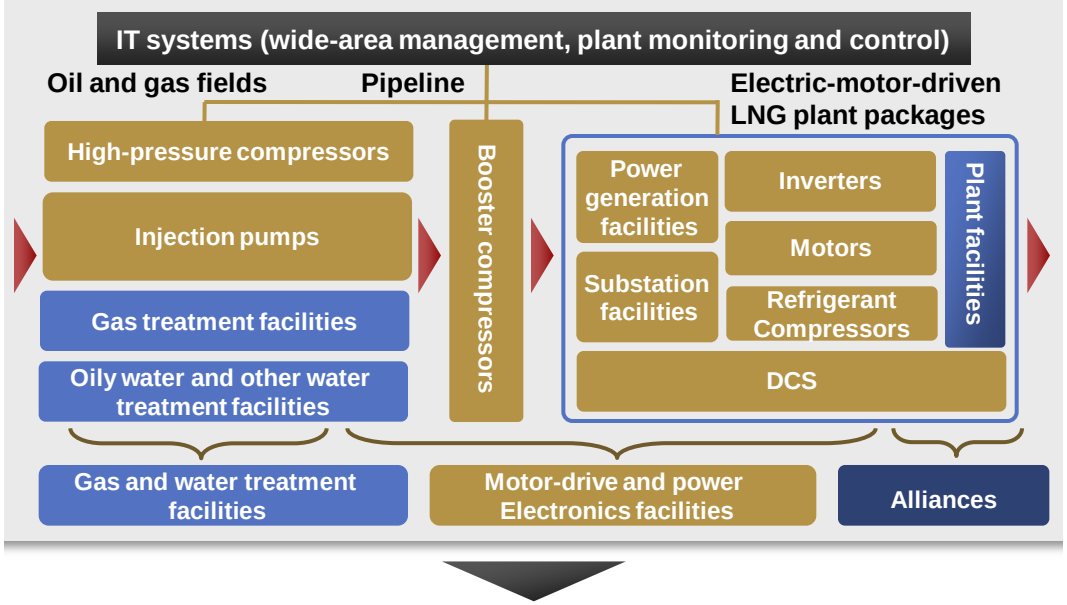
Provide total oil & gas solutions extending from oil and gas fields (on land or at sea) to LNG facilities

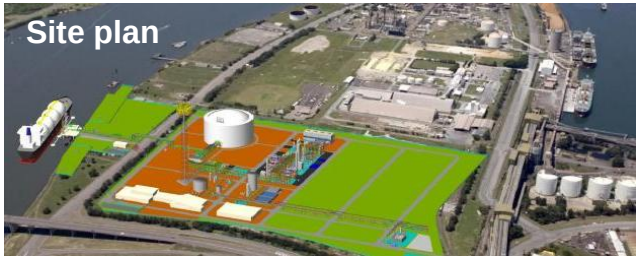
- **Respond to demand to reduce environmental impact leveraging core technologies**
  (Improve efficiency with motor-drive technologies, RO membrane water treatment and IT)
- **Lower costs and shorten delivery times by packaging solutions**



Expand oil & gas business through cooperation with partners and local maintenance service networks

DCS:Distributed Control System , FPSO : Floating Production Storage and Offloading
FLNG : Floating Liquefied Natural Gas , RO : Reverse Osmosis

Newcastle LNG Plant, Australia



- **Motor-driven plant (low cost, low environmental impact)**
- **Proposing a total plant package in conjunction with Toyo Engineering**

Floating Plants in Brazil (FLNG, FPSO)

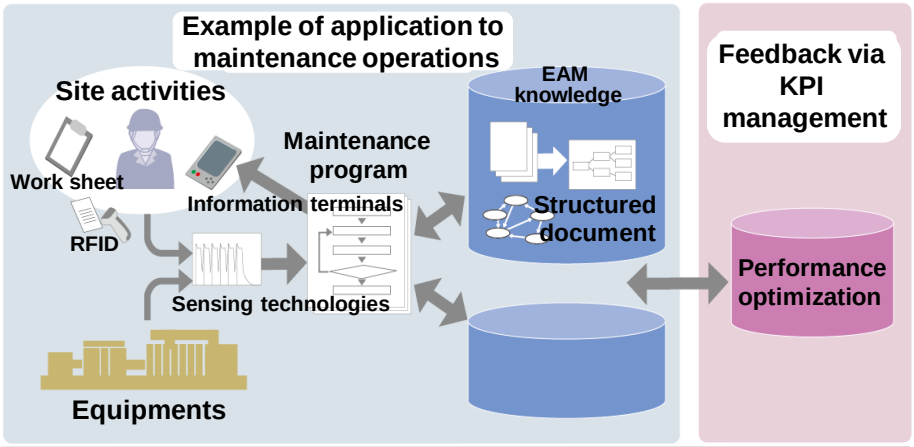
Process compressors

RO membrane water treatment

- **First order for installing compressors and water treatment system for a FPSO (September 2011)**
- **Responding to floating operations (small, lightweight package solutions, vibration resistance, environment resistance)**

Continue developing solutions for visualizing and extracting knowledge from information relating to plant facilities

Enhance operations and maintenance using site information



- Plant operating information visualization
- Improvement of maintenance work efficiency (work instructions, work plan support)
- Unification of facility management (specifications, maintenance information)

Extend to management support solutions

(Improved efficiency of global operations, Respond to aging society and lack of skilled workers)

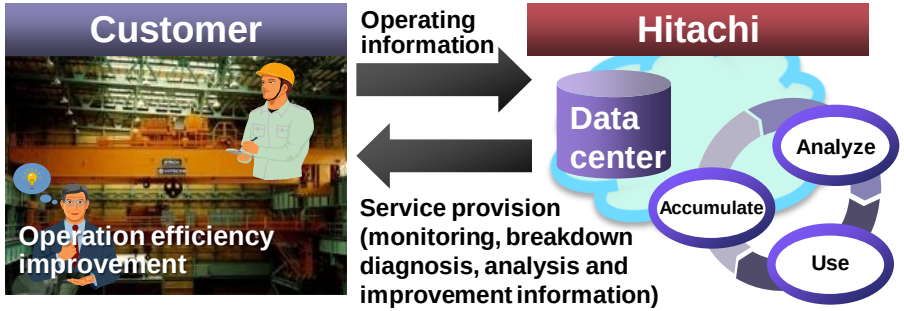
Plant maintenance work management system using tablet terminals

Information upload and download

- Improve efficiency of site maintenance work, paperless unify maintenance information, build know-how

Crane Doctor Cloud
Cloud service for crane monitoring, failure diagnosis and facilities maintenance.

Provide high-value-added services based on cloud computing



- Launched service in December 2011

EAM : Enterprise Asset Management , RFID : Radio Frequency Identification , KPI : Key Performance Indicators

3-4 Components Business

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Provide new technologies and components for making systems and plants more intelligent and adding value

Respond to need for higher reliability, speed and capacity

Information control platforms

Realize fault tolerance and high-speed processing
(social infrastructure, large-scale plants)

CF-1000/FT
Fault tolerant (FT) systems

Industrial-use computers

High-reliability using PC architecture, and long-term support (monitoring control, embedding in industrial equipment)

HF-W7500/LX Model30

Industrial-use wireless communications equipments

Develop business in the area of wide-area wireless to short-distance wireless communications, equipment control and data collection

smartMODULE

Power distribution and utility monitoring equipments

Realize real-time, detailed monitoring and control function

H-NET

Web controllers

Leading in the fields of energy saving, resource saving and materials innovation

Industrial-use transformers

Amorphous transformers
- **Won 8th Eco Products Awards in November 2011**
- **Won Grand Prize for Energy Saving Product in Eco-Products Category**

Super amorphous XSH series

Industrial inverters

NE-S1 series achieves simple operability and cost performance with smallest dimensions in industry

NE-S1 series

Power conditioners (PCS)

Power conditioners for solar power generation that realize an industry-leading* power conversion ratio
「BUY電ゲートウェイ」
***As of May 2012; Hitachi research**

PCS : Power Conditioning Subsystem

3-5 Developing Global Growth Markets (1)

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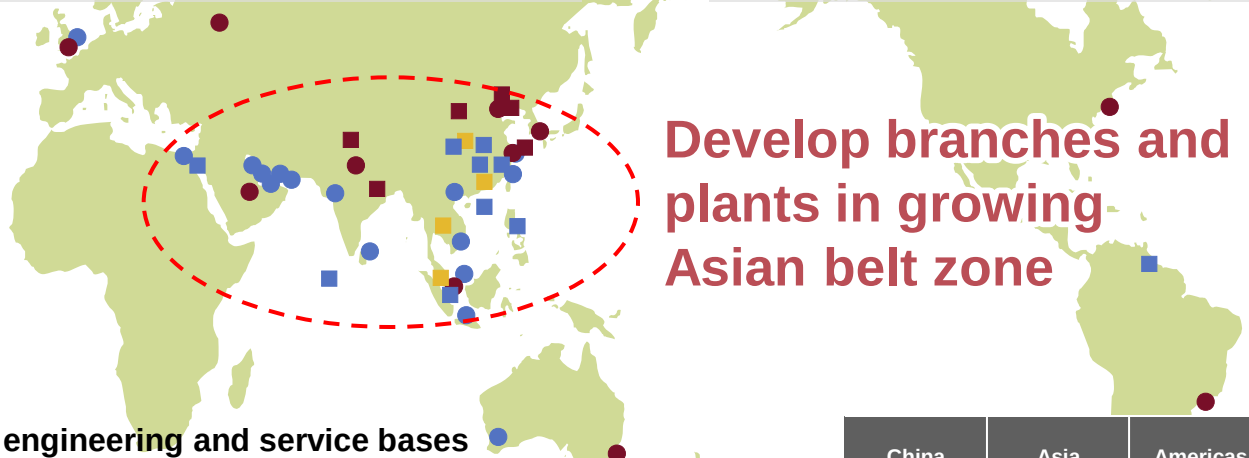
Expand global business by promoting localization operations in growth markets

- Improve customer-focused management and services businesses by expanding and enhancing the sales and service network
- Develop solution businesses fitted with local needs by strengthening local manufacturing and engineering

- Accelerate business development through alliances and M&As
- Establish global "MONOZUKURI" network through Hitachi Groups collaboration and IT utilization



■ **Manufacturing, engineering and service bases (local subsidiaries)**

Infrastructure Systems Company	6 (6)
Hitachi Plant Technologies	17 (4)
Hitachi Industrial Equipment Systems	4 (3)

* Figures in brackets indicate joint ventures with local partners and investments

■ **Sales bases (offices)**

	China	Asia	Americas	Europe and others	Total
Hitachi Plant Technologies	3	8	2	7	20
Hitachi Industrial Equipment Systems	69	88	53	98	308

● Hitachi, Ltd. ● Hitachi Plant Technologies, Ltd.
Overseas sales bases for Hitachi Industrial Equipment Systems Co., Ltd. are omitted

3-5 Developing Global Growth Markets (2)

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Develop regionally centered on emerging countries

China

- Develop regionally focused businesses, water business, in cooperation with leading companies
- Expand business to the environmental and energy-saving fields by bolstering local production (power electronics business, control systems business)

India

- Enter into the Indian market by establishing manufacturing, sales and service networks in growing regions

Middle East

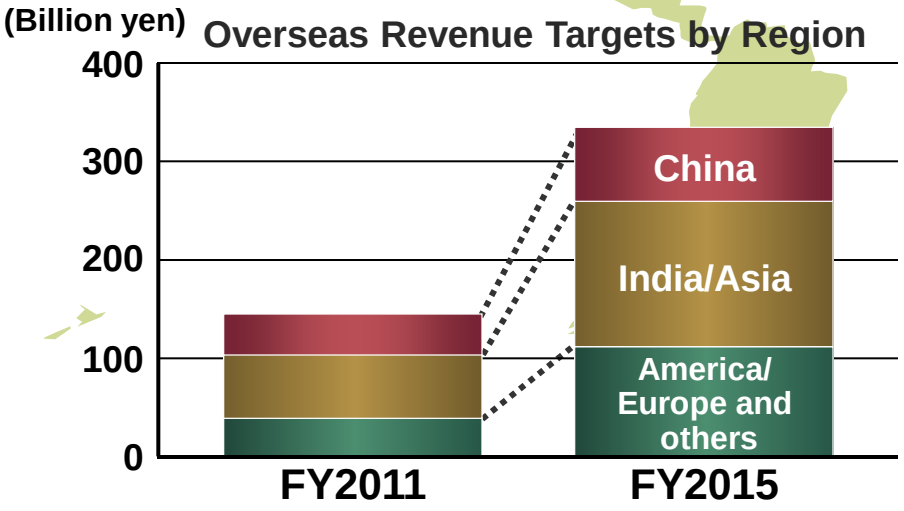
- Enter oil & gas market by strengthening service network
  - Signed corporate procurement agreement for compressors with Saudi Arabian Oil Company (June 2011)
  - Established plant equipment maintenance company (June 2012)

North America/ Europe

- Entering into the smart grid market starting from demonstration projects, and extend into business projects (Projects in Spain and Hawaii and others)

South America

- Enter oil & gas market by strengthening service network
  - Establish plant-use compressor after-sales service framework through joint venture with Mayekawa Manufacturing (Establish company before end of 2012)



CPA:Corporate Procurement Agreement

3-5 Developing Global Growth Markets (3)

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Full-scale entry into the Indian market by establishing manufacturing, sales and service bases in growth markets

Construction and services

- Established construction and engineering base
  (Established February 2012)
  Offer integrated industrial plant construction and services for Japanese companies advancing into India

Industry

- Begin local production of industrial power electronics products
  (Commence operations at a plant in December 2012)
  Increase orders for plant energy-saving and electric control systems for steel plants with integrated manufacturing, sales, and service organizations

Water

- Establish sea water desalination operating company
  Extend business from sea water desalination including operations and services to smart city projects

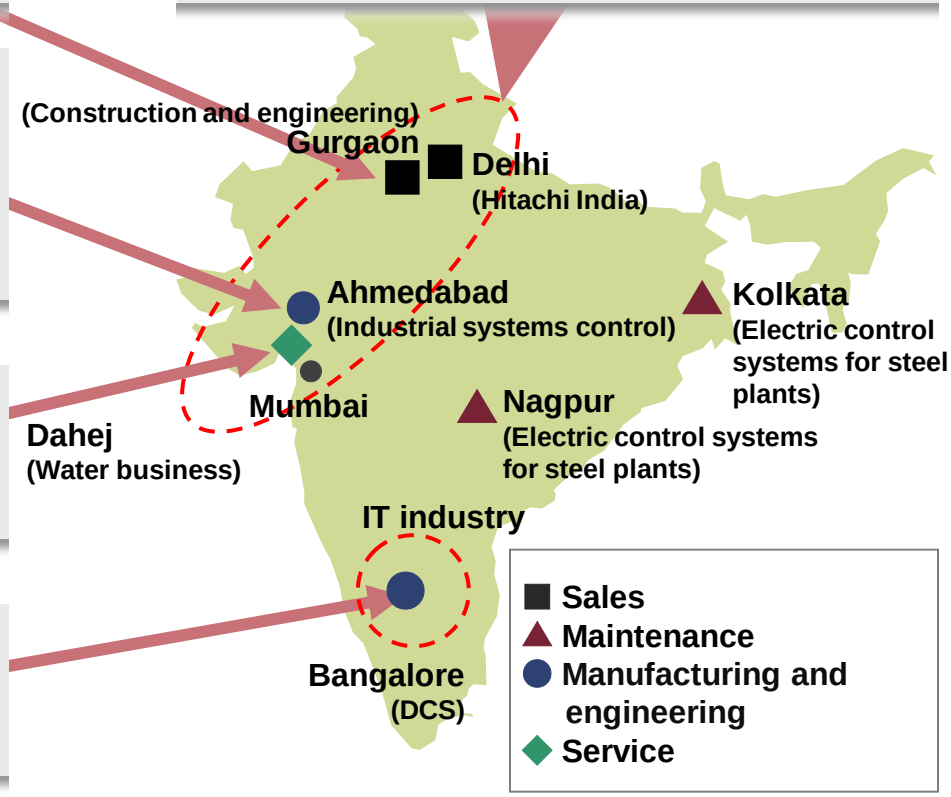
Energy

- Began operations at DCS engineering base (October 2011)
  Pursue system solution business extending from thermal power plant monitoring and control systems to smart grids

[Revenue Target : over 50 billion Yen (FY2015)]

Delhi Mumbai Industrial Corridor project
(Develop comprehensive industrial structure)

- Pursue regionally focused infrastructure business as a Hitachi Group, including the water treatment, energy And industrial fields



3-5 Entering Global Growth Markets (4)

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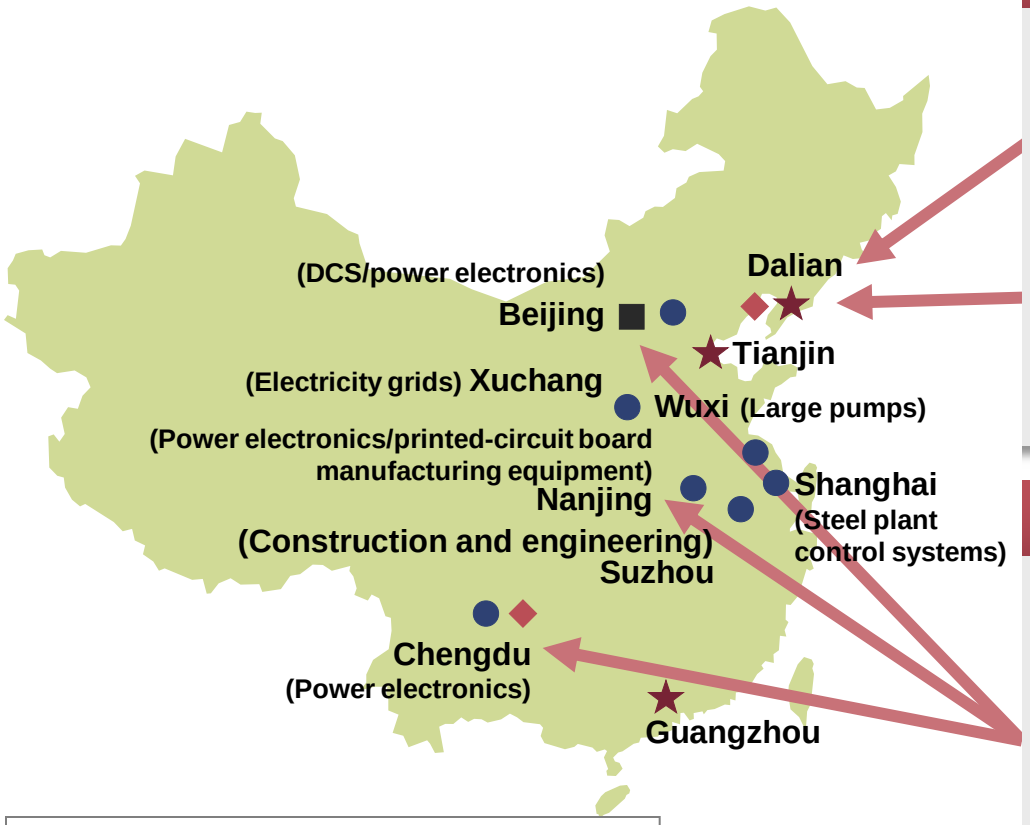
Expand total solutions business deeply rooted in China

[Revenue Target: over 70 billion Yen (FY2015)]



■ Sales
● Manufacturing and engineering
★ Smart cities Major projects
◆ Major water business projects

Cooperation with leading companies

- Participate in sea water desalination and sewage treatment on Changxing Island in conjunction with Dalian City(Currently conducting feasibility studies)
- Participate in wastewater treatment and water reuse business in the Dalian National Eco-Industrial Demonstration Park in conjunction with Dalian Dongda Group
  (In negotiations on an official agreement)

Expand local production

- Increase production capacity for power Electronics products to respond market needs for improved environmental performance, energy saving, and efficient plants
  - Beijing: Large-scale solar PCS
  - Chengdu: Large inverters for plants
  - Nanjing: Small and medium-sized inverters for industrial equipments

3-6 Strengthen Business Base

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Investment in key development areas and pursue Hitachi Smart Transformation Project

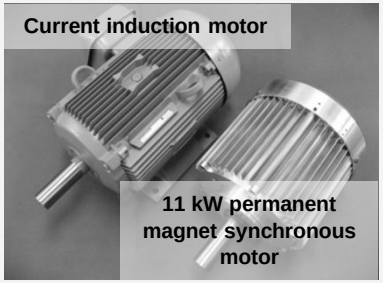
Investments in key development areas

Invest 50% of R&D budgets into strategic fields

- System operation technologies for overall optimization
  (Information control and coordination environment, DR technologies, EAM)
- Energy-related products
  (Large power converters, rare earth-free products)
- Environment and natural resource development-related fields
  (large-scale sea water desalination, oily water treatment, high-pressure compressors)

- 11 kW rare earth-free motor

Highest standard in IEC efficiency guidelines (IE4)
Achieved motor efficiency of approx. 93%



Achieve resource savings and high efficiency

Achieve higher earnings

Execute Hitachi Smart Transformation Project
Achieve cost structure reforms through cooperation with all Hitachi Group

- Strengthen "MONOZUKURI" capabilities
  (Reform manufacturing processes in Japan; Expand manufacturing capabilities overseas; Develop modularization of control software)
- Globalize value chain
  (Localize manufacturing, sales and services, and establish global IT management platform)
- Develop global human capital, system engineers with IT and infrastructure expertise

→ For improvement of profitability

Transform into a global major player

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Infrastructure Systems Business Strategy

Contents

4 Business Performance Trends and Targets

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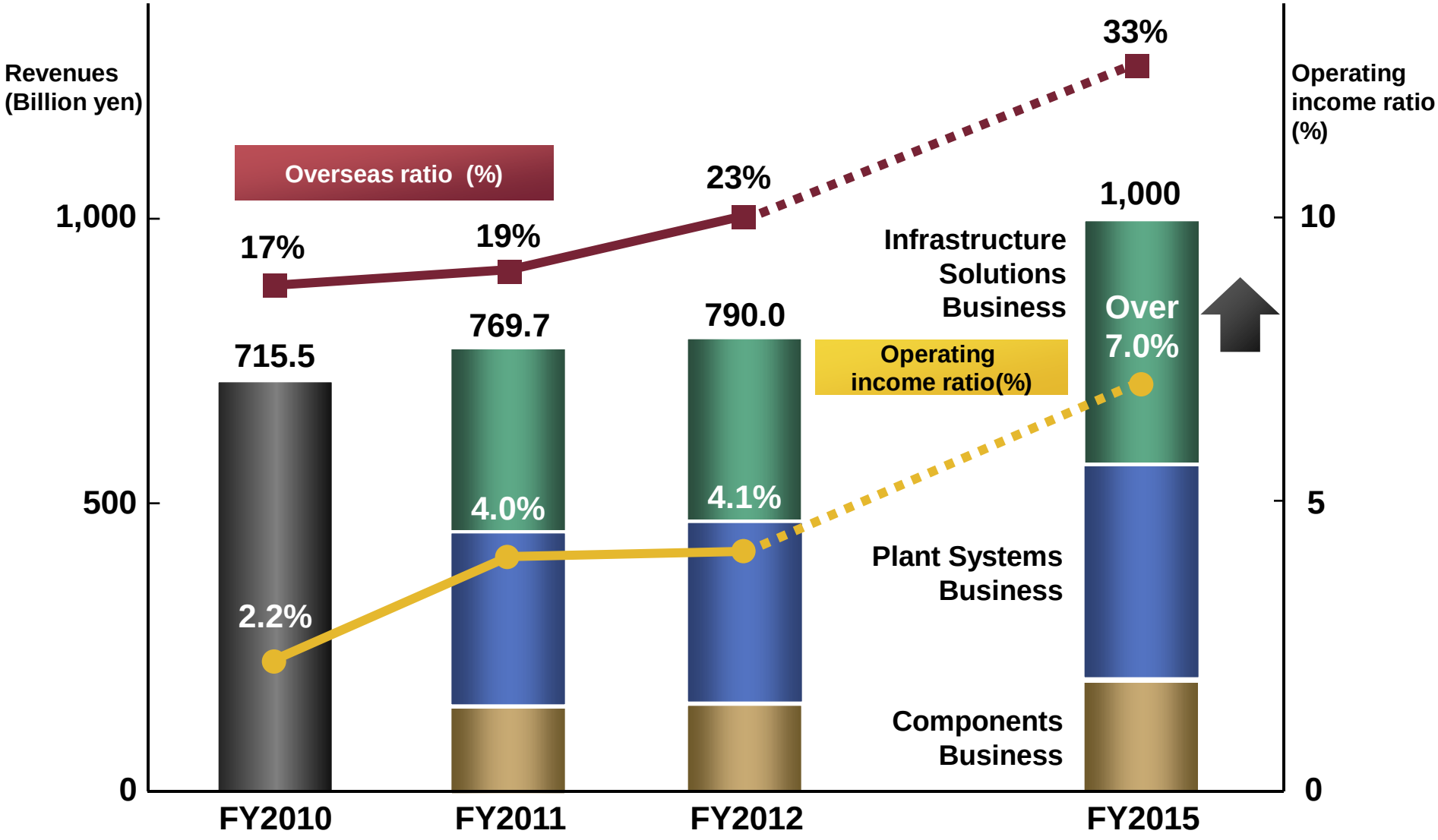

•A certain amount of revenues and operating income of the Infrastructure Systems Company are included in the Information & Telecommunication Systems Company, the Power Systems Company and the Rail Systems Company

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Contents

5 Conclusion

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FY2015 Targets

- Revenues 1 trillion Yen
- Overseas revenue ratio 33%
- Operating income ratio over 7%

Drive Social Innovation Business, which provides social infrastructures supported by highly efficient and highly reliable IT technology

Cautionary Statement

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Certain statements found in this document may constitute “forward-looking statements” as defined in the U.S. Private Securities Litigation Reform Act of 1995. Such “forward-looking statements” reflect management’s current views with respect to certain future events and financial performance and include any statement that does not directly relate to any historical or current fact. Words such as “anticipate,” “believe,” “expect,” “estimate,” “forecast,” “intend,” “plan,” “project” and similar expressions which indicate future events and trends may identify “forward-looking statements.” Such statements are based on currently available information and are subject to various risks and uncertainties that could cause actual results to differ materially from those projected or implied in the “forward-looking statements” and from historical trends. Certain “forward-looking statements” are based upon current assumptions of future events which may not prove to be accurate. Undue reliance should not be placed on “forward-looking statements,” as such statements speak only as of the date of this document.
Factors that could cause actual results to differ materially from those projected or implied in any “forward-looking statement” and from historical trends include, but are not limited to:

- economic conditions, including consumer spending and plant and equipment investment in Hitachi’s major markets, particularly Japan, Asia, the United States and Europe, as well as levels of demand in the major industrial sectors Hitachi serves, including, without limitation, the information, electronics, automotive, construction and financial sectors;
- exchange rate fluctuations of the yen against other currencies in which Hitachi makes significant sales or in which Hitachi’s assets and liabilities are denominated, particularly against the U.S. dollar and the euro;
- uncertainty as to Hitachi’s ability to access, or access on favorable terms, liquidity or long-term financing;
- uncertainty as to general market price levels for equity securities, declines in which may require Hitachi to write down equity securities that it holds;
- the potential for significant losses on Hitachi’s investments in equity method affiliates;
- increased commoditization of information technology products and digital media-related products and intensifying price competition for such products, particularly in the Digital Media & Consumer Products segments;
- uncertainty as to Hitachi’s ability to continue to develop and market products that incorporate new technologies on a timely and cost-effective basis and to achieve market acceptance for such products;
- rapid technological innovation;
- the possibility of cost fluctuations during the lifetime of, or cancellation of, long-term contracts for which Hitachi uses the percentage-of-completion method to recognize revenue from sales;
- fluctuations in the price of raw materials including, without limitation, petroleum and other materials, such as copper, steel, aluminum, synthetic resins, rare metals and rare-earth minerals, or shortages of materials, parts and components;
- fluctuations in product demand and industry capacity;
- uncertainty as to Hitachi’s ability to implement measures to reduce the potential negative impact of fluctuations in product demand, exchange rates and/or price of raw materials or shortages of materials, parts and components;
- uncertainty as to Hitachi’s ability to achieve the anticipated benefits of its strategy to strengthen its Social Innovation Business;
- uncertainty as to the success of restructuring efforts to improve management efficiency by divesting or otherwise exiting underperforming businesses and to strengthen competitiveness and other cost reduction measures;
- general socioeconomic and political conditions and the regulatory and trade environment of countries where Hitachi conducts business, particularly Japan, Asia, the United States and Europe, including, without limitation, direct or indirect restrictions by other nations on imports and differences in commercial and business customs including, without limitation, contract terms and conditions and labor relations;
- uncertainty as to the success of alliances upon which Hitachi depends, some of which Hitachi may not control, with other corporations in the design and development of certain key products;
- uncertainty as to Hitachi’s access to, or ability to protect, certain intellectual property rights, particularly those related to electronics and data processing technologies;
- uncertainty as to the outcome of litigation, regulatory investigations and other legal proceedings of which the Company, its subsidiaries or its equity method affiliates have become or may become parties;
- the possibility of incurring expenses resulting from any defects in products or services of Hitachi;
- the possibility of disruption of Hitachi’s operations by earthquakes, tsunamis or other natural disasters;
- uncertainty as to Hitachi’s ability to maintain the integrity of its information systems, as well as Hitachi’s ability to protect its confidential information or that of its customers;
- uncertainty as to the accuracy of key assumptions Hitachi uses to evaluate its significant employee benefit-related costs; and
- uncertainty as to Hitachi’s ability to attract and retain skilled personnel.

The factors listed above are not all-inclusive and are in addition to other factors contained in other materials published by Hitachi.