

# **Information & Control Systems Business Strategy**

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**Hitachi, Ltd.**

# Information & Control Systems Business Strategy

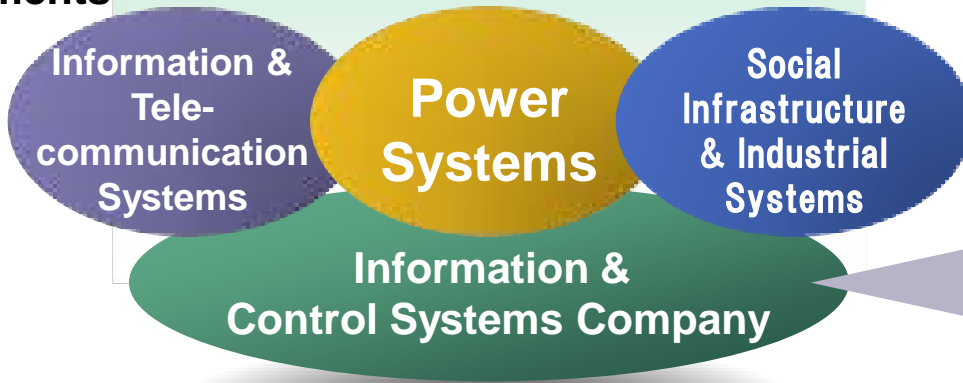
## Contents

- 1. Business Overview**
2. Market Trends
3. Performance Targets
4. Growth Strategy
5. Conclusion

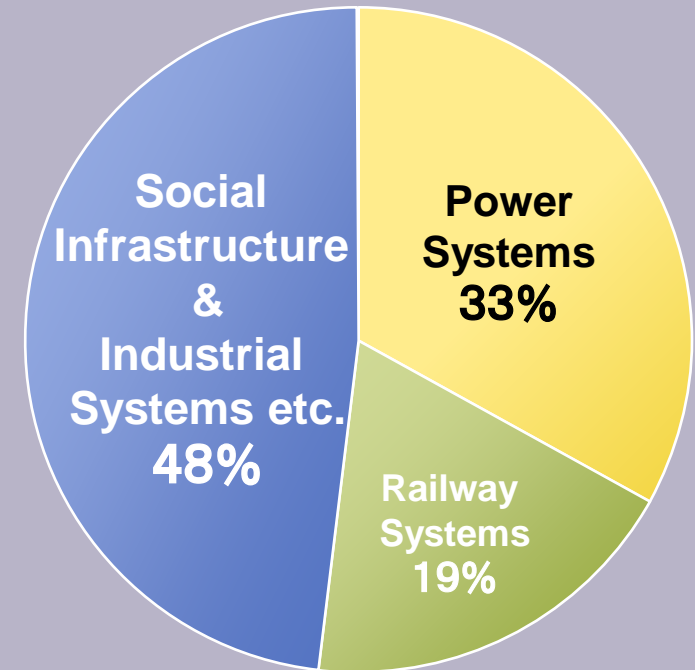
# 1-1. Positioning of the Information & Control Systems Company

## Social Innovation

Segments



## Revenues by Business Field



FY2009 consolidated revenues (\*)  
¥232.9 billion

(\*) Revenues are included separately those of Information & Telecommunication Systems Company, Power Systems Company, and Social Infrastructure & Industrial Systems Company.

Provide optimal systems to operate and manage social infrastructure  
Add value and use distinctive technologies to drive the Social Innovation Business

Wide application scope from information to control systems

From system proposals to MONOZUKURI







Power Systems		Railway Systems		Social Infrastructure & Industrial Systems		
Power system monitoring and control	Customer service support Management support	Traffic control	Seat reservations	ITS and ETC systems	Water supply and sewage monitoring and control	Steel rolling mill control
	 		 			
Thermal/nuclear power instrumentation and control				Image processing		
						

## Control System Technologies and Information System Technologies

Simulation and analysis technologies    Control systems middleware    High-speed transaction processing

Autonomous decentralized system architecture    Large-scale, high-reliability databases

## Platforms and Components

Information platforms		Control components		Power electronics products		
Servers	Storages	Control servers	EIC integrated controllers	UPS	High-voltage inverters	Power converters
						

## Tokyo Area Urban Train Control System (ATOS)

### ■ World's largest real-time control system

(Thousands of computers manage about 300 train stations in 19 train sections)



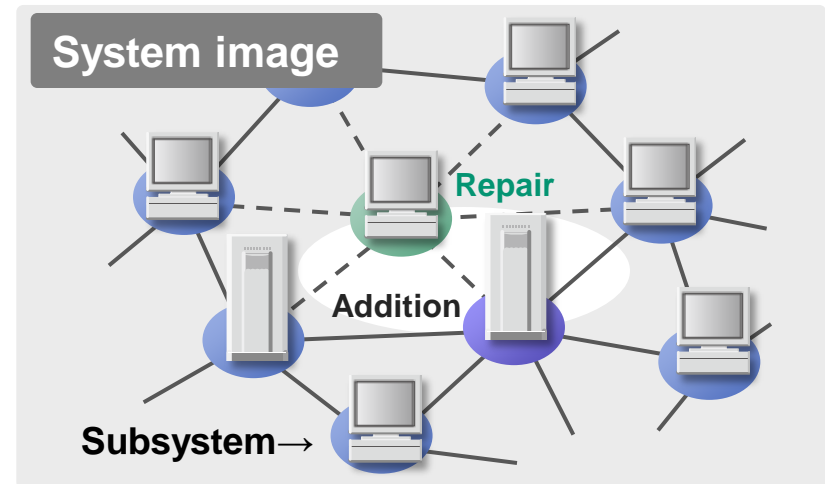
### ■ Supporting safe, secure and reliable train operations in the Tokyo area, 24 hours a day.

(Controlling around 7,300 trains everyday, at minimum to 2-minute intervals)

(Data collated by Hitachi from published data)

### ■ Autonomous decentralized architecture

- Each subsystem functions autonomously
- Faults in one part do not affect the entire system



- Progressive expansion of the system for each station and train zone  
(20 years since project launch and still expanding)
- Systemization of complex control and business operations  
(Division of work between station and center)
- A highly reliable wide area network

## Shinkansen Traffic Control System

- **World's first computer-controlled traffic management system**  
(1972 opening of Sanyo Shinkansen in Okayama)
- **Supporting high-speed, high frequency, accurate, safe Shinkansen traffic**



- **Business operation: Approx. 2,400 kilometers, carrying approx. 860,000 people/day**
- **Speed: 300 km/h Frequency: Approx. 1,000 trains/day**
- **Average delay time per train: 0.6 min.**  
(FY2009 Tokaido Shinkansen Statistics, including delays caused by natural and weather effects)

(Data collated by Hitachi from data published on Japan Railway company websites)

- **Highly reliable real-time control technology**
  - Built in redundancy in system structure and fault tolerant (FT) systems used for high-reliability and high-speed processing
  - **Systemization of high-level driving functions**
    - Train schedule management and real-time automatic track control
    - Train schedule rearrangement based on schedule prediction

### ■ Fault tolerant systems

- **Fault tolerant and high-speed processing**  
13-year operation record
- **New model CF-1000/FT**  
Uses common hardware and proprietary control software to realize FT



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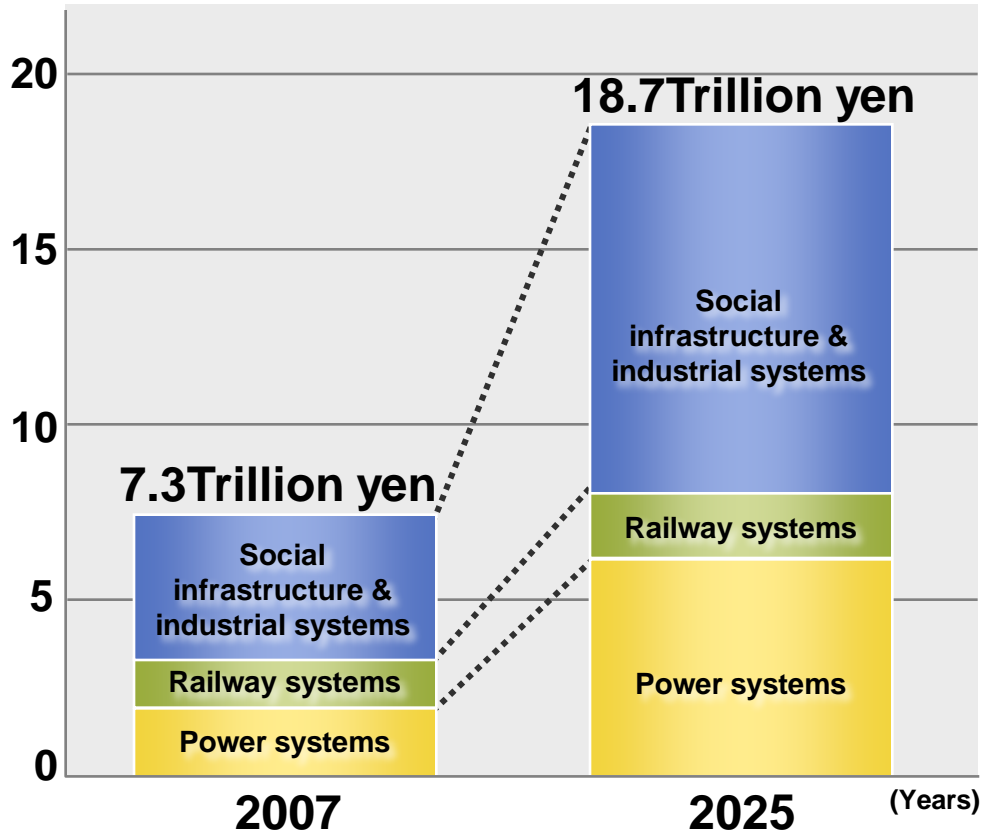
## Contents

1. Business Overview
- 2. Market Trends**
3. Performance Targets
4. Growth Strategy
5. Conclusion

**Increasing demand for social infrastructure systems for creating a low-carbon society**

**Infrastructure Information and Control Systems Market\***

(Trillion yen)



- Increasing sophistication of Infrastructure in industrialized countries (Smart grid, high-speed rail, U.S. “Green New Deal,” etc.)
- Development of large-scale cities in emerging countries-power, water, Industrial infrastructure, etc.

**Safe, secure, comfortable, green**



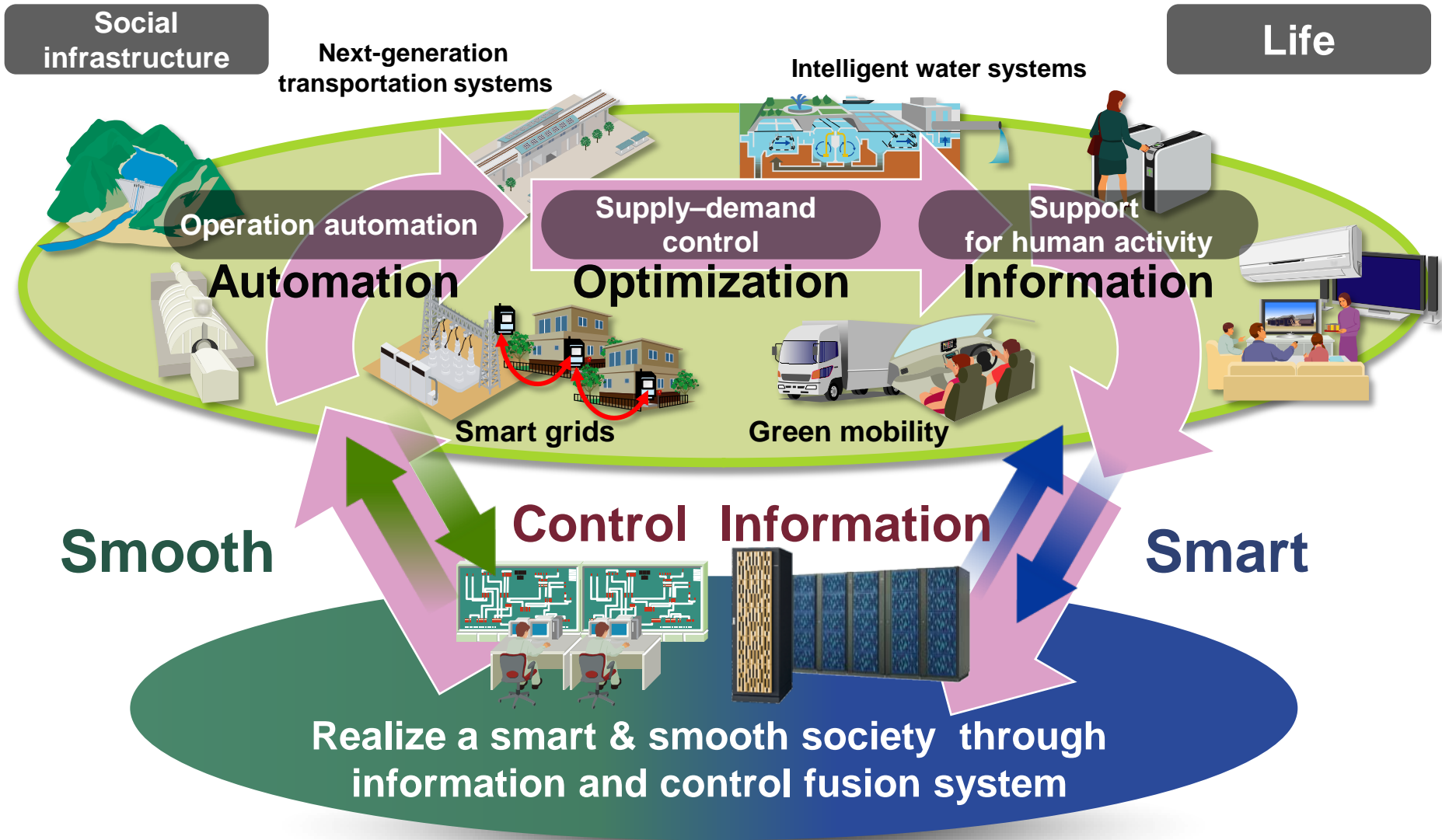
**Meet new needs by fusing information and control technologies**

\* Information & Control Systems Company estimates based on Global Water Market 2008, UNFE Worldwide Rail Market Study, and DOE/EIA International Energy Outlook, etc.



# 2-2. Smart & Smooth –Fusing Information and Control Technologies

Connecting social infrastructure with life through services to provide solutions that are safe, secure, comfortable and green



Use control information to support human mobility and increase convenience



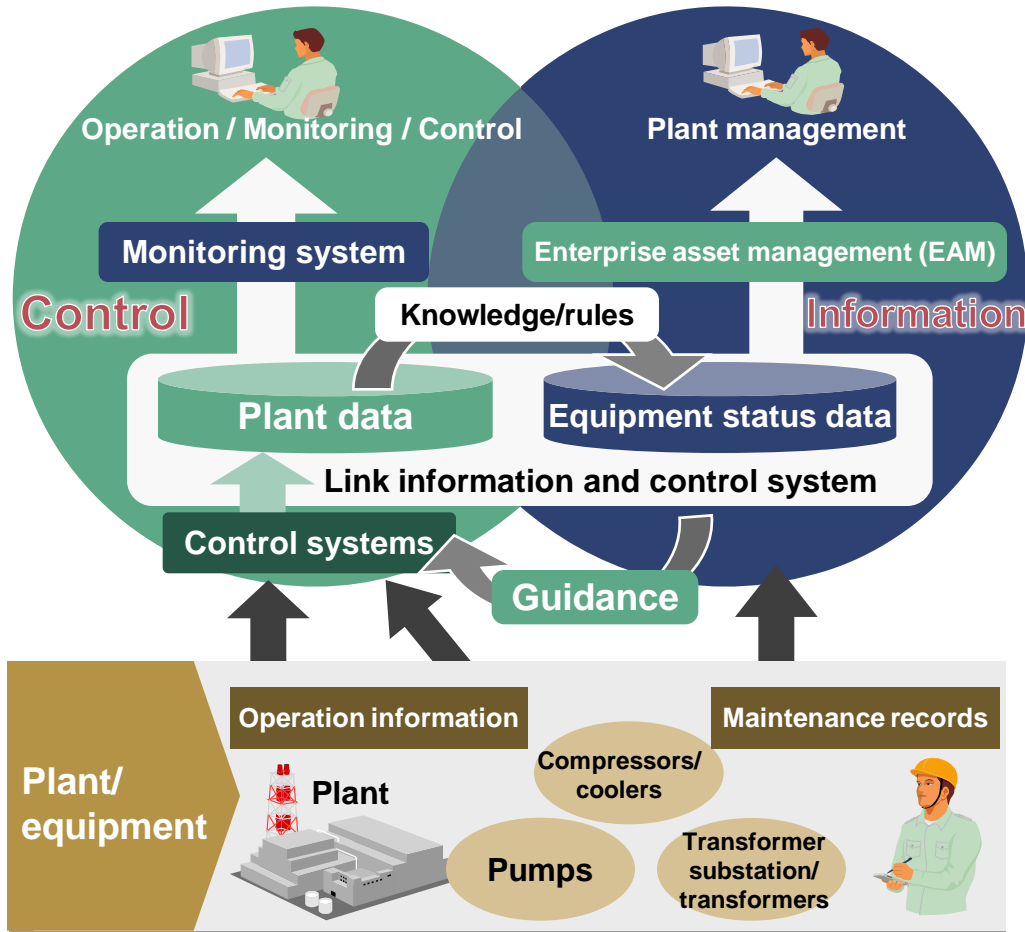
## Digital signage

- Fusing traffic control and SaaS-type content distribution services
- Provision of train service information to station users improves convenience



SaaS : Software as a Service

## Applying knowledge extraction to plant information to automate and raise efficiency of plant operation and maintenance



■ Use data-mining technology with control information and plant know-how to extract and systemize knowledge and rules



■ Achieve high efficiency of operation and maintenance, raise operation rates and reduce environmental load, etc.

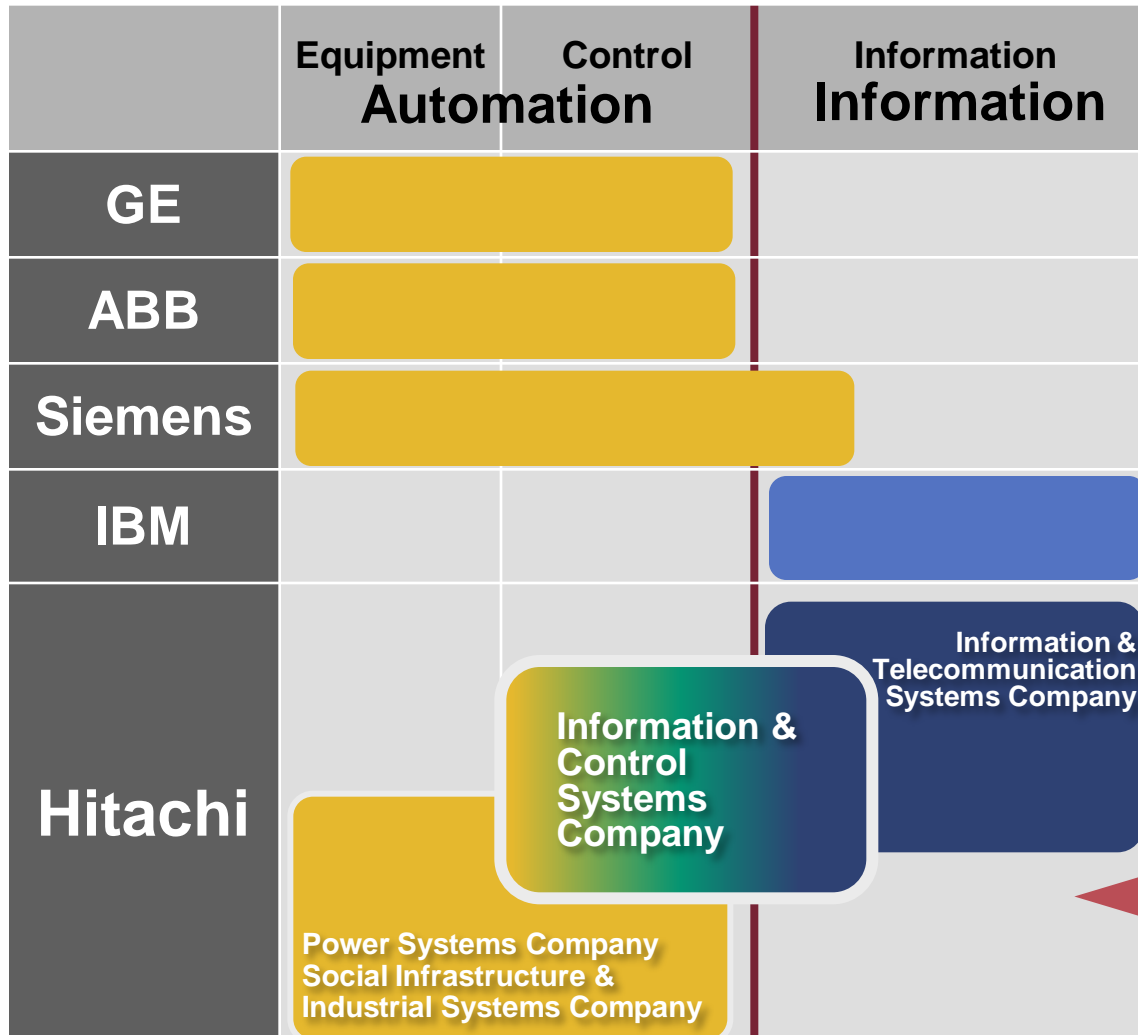
Progressively introduce for all kinds of plants, including industrial and power generation

- Enterprise asset management (EAM)
- Remote maintenance, operation guidance
- Environmental management solutions, etc.

EAM : Enterprise Asset Management

# 2-4. Competitive Environment

Hitachi and others respond to new social infrastructure needs by strengthening their solutions



## Hitachi

- Group companies have been developing businesses in collaboration in a wide range of fields
- The Information & Control Systems Company provides solutions that fuse information with control.

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## Contents

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2. Market Trends
- 3. Performance Targets**
4. Growth Strategy
5. Conclusion

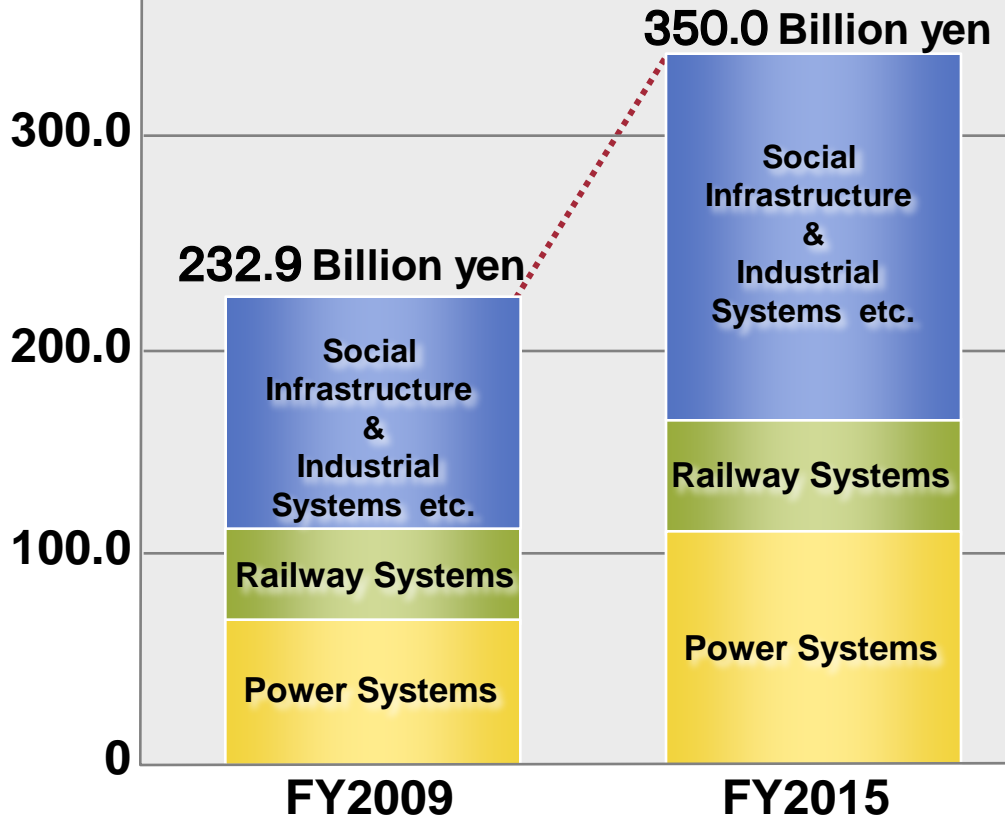
# 3. FY2009 Results and Medium-Term Targets

## Business Policy

Develop solutions that fuse information and control into global growth markets

(Billion yen)

### Revenue Target



### Key Initiatives for FY2010

- Provide fused valued-added systems through collaborative creation with customers
- Further strengthen global business base

### FY2015 Targets

- Revenue: ¥350.0 billion
- Overseas revenue ratio: 35%

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## Contents

1. Business Overview
2. Market Trends
3. Performance Targets
- 4. Growth Strategy**
5. Conclusion

## Develop solutions that fuse information and control in global growth markets

### Strategies

■ **Promote businesses involving collaborative creation with customers**

- Provide value-added solutions through information-control fusion × knowledge and experience

■ **Develop next-generation social infrastructure systems by drawing on the collective strengths of the Hitachi Group.**

- **Use urban development projects as a springboard for expanding into global growth markets**
- Respond to demand for urban development in emerging countries (China, India, etc.), and upgraded infrastructure in industrialized countries.

### Action Plans

- Provide solutions that fuse information and control for railways
- Provide complete systems by developing a support package for plant operation and maintenance

- Concentrate investment in joint R&D with the Supervisory Office for Business Coordination (energy, transport, etc.)
- Collaboration with Smart City Business Management Division. (Control of businesses and development across the group)
- Development of next-generation smart grid solutions

- Strengthen ties with governments to create projects. (Tianjin Eco-City, Delhi Mumbai Industrial Corridor feasibility study, etc.)
- Establish global manufacturing and SI bases
- Actively propose inter-city high-speed rail plans

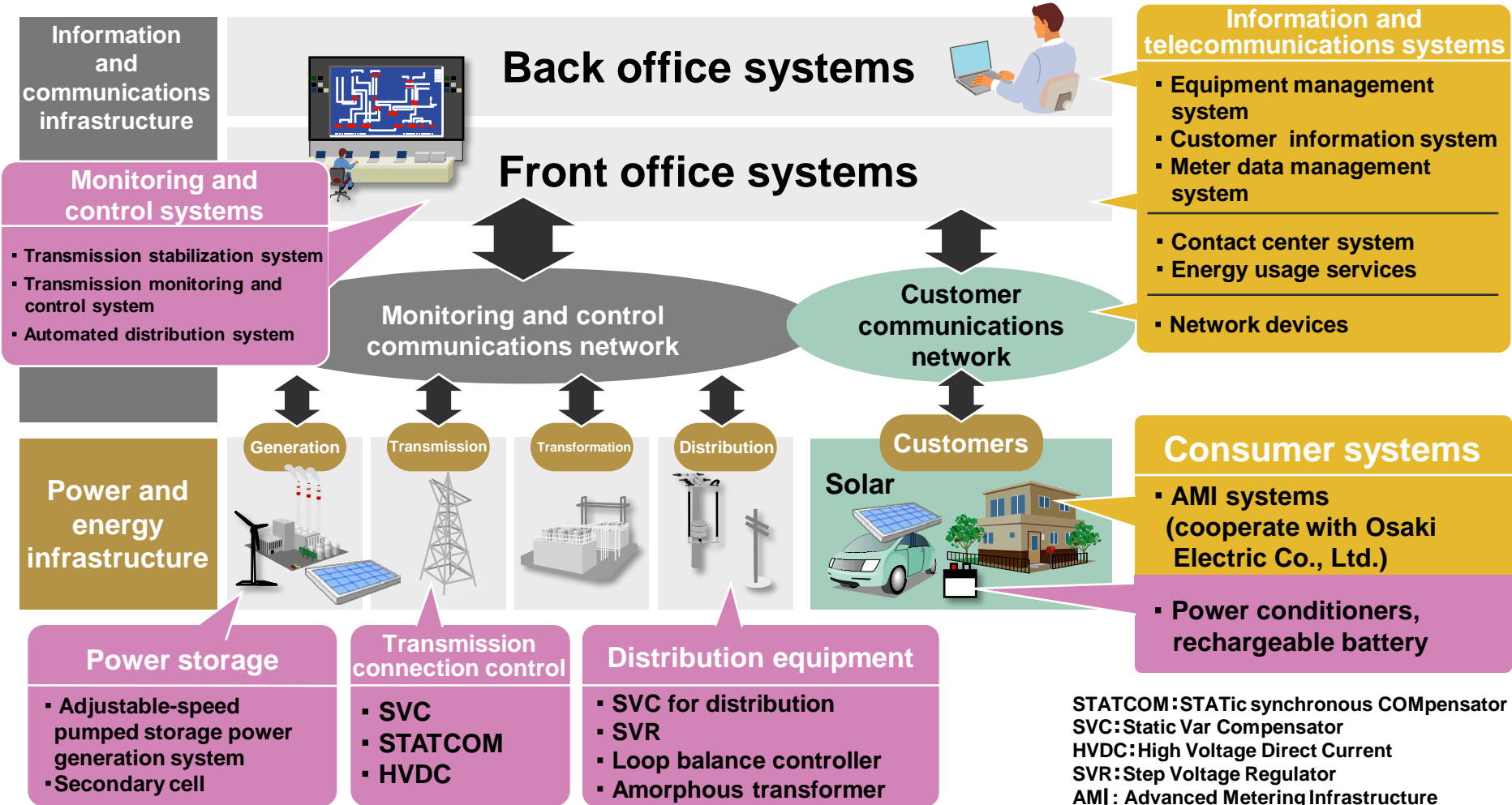


### Develop next-generation smart grid solutions

- **Hitachi smart grid technologies and solutions**
- **Developing next-generation smart grid solutions**

# 4-3. Hitachi Smart Grid Technologies and Solutions

From control of power equipment and systems business operation systems  
Hitachi contributes to the stable supply of power and overall optimization  
of power distribution systems



STATCOM: STATIC synchronous COMPensator  
 SVC: Static Var Compensator  
 HVDC: High Voltage Direct Current  
 SVR: Step Voltage Regulator  
 AMI: Advanced Metering Infrastructure

# 4-4. Developing Next-generation Smart Grid Solutions

Total optimization of energy infrastructure through fusion of power and information technologies

## Develop next generation systems and technologies that are Smart & Smooth

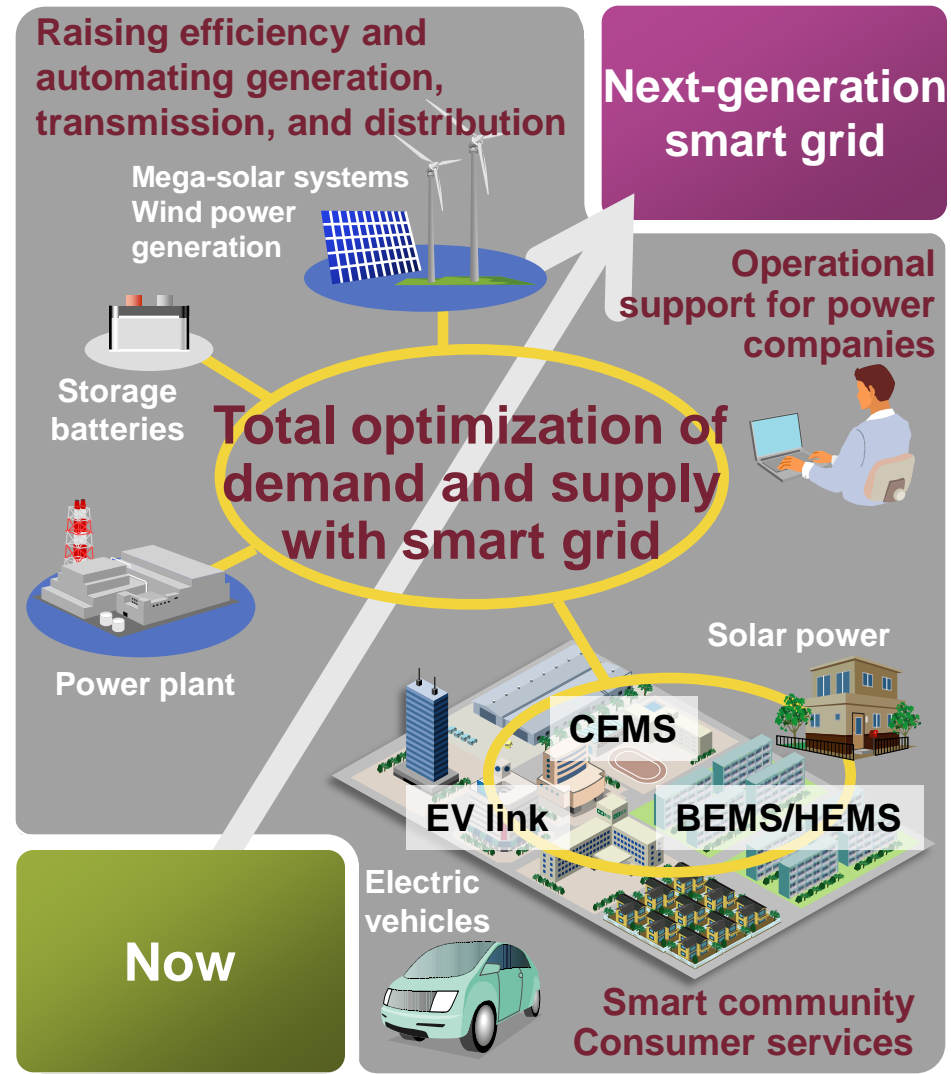
- Develop next-generation grid stabilization technologies (Smart grid simulators, etc.)
- Create safe, high-efficiency community energy management system (CEMS) (DSM, EV linking, authentication management)
- Develop total AMI solutions (MDM, distribution equipment management, further joint operations with Osaki Electric Co., Ltd)



## Accumulate technologies and standardize through participation in demonstration projects (\*)

(\*) With Japan Wind Development Co., Ltd. (Rokkasho Village), and NEDO (New Mexico, U.S.) and others.

DMS : Demand Side Management , EV:Electric Vehicle  
MDM : Meter Data Management  
CEMS : Community Energy Management System ,  
HEMS : Home Energy Management System , BEMS : Building Energy Management System ,



# Penetration in Global Growth Markets

- **Trends**
- **Activities in emerging countries**
- **Constructing Global Manufacturing and SI Bases**

# 4-6. Penetration in Global Growth Markets (1) Trends

Large-scale projects are underway for building social infrastructure in emerging countries, and sophisticating infrastructure in industrialized countries

## Europe and Africa

- High-speed railway in the U.K.

## China

- National Development and Reform Commission's model project for energy saving and emission reduction
- Eco-city development (Tianjin, etc.)
  - Railway network

## U.S. and Canada

- Smart grid demonstrative projects (New Mexico, etc.)
  - Bolstering nuclear power generation
  - High-speed railway network

- Emerging countries are undertaking urban construction and infrastructure upgrades simultaneously, aiming for economic growth and low-carbon societies

## India, South East Asia and the Middle East

- Delhi Mumbai Industrial Corridor

## Brazil

- High-speed railway

Participate in urban development and inter-city transport projects centered on systems that coordinate information and control

■ Establish a business model through participation in international projects and demonstrative projects

Provide total solutions for urban energy management

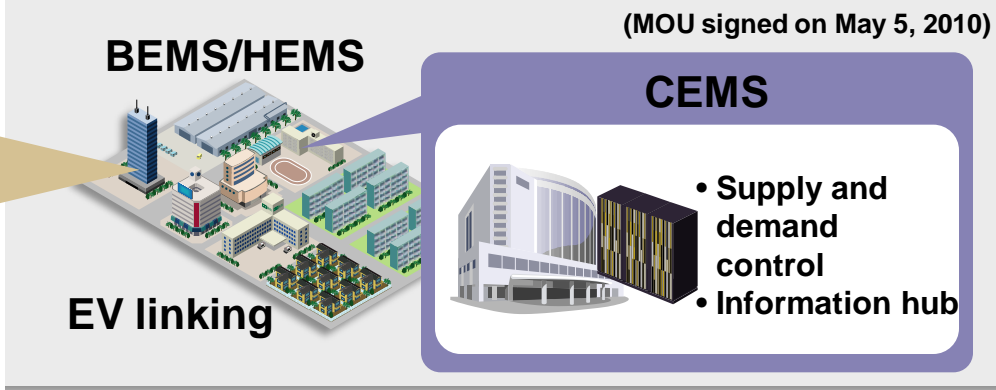
- Power transmission stabilization system
- Advanced Metering Infrastructure (AMI)
- Community energy management (CEMS)
- EV linking system, etc.

Participate in consortiums for providing total industrial infrastructure (power, water treatment, transport, etc.)

- Look broadly at application potential for information and control systems

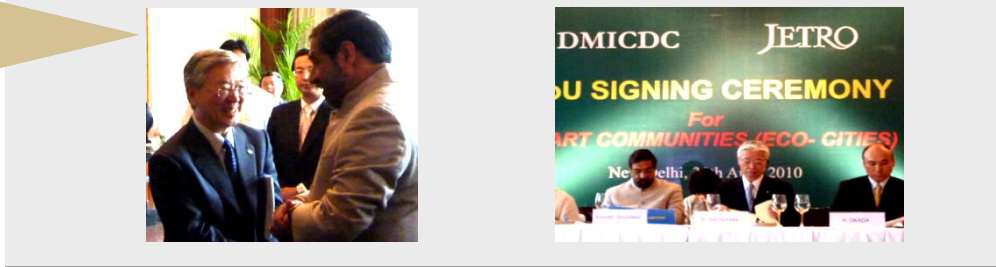
## Participation in Tianjin Eco-City – a Strategic Cooperation Project

(MOU signed on May 5, 2010)



## Delhi Mumbai Industrial Corridor (DMIC)

Participation in joint project between Japan and India (MOU signed April 30, 2010)



AMI : Advanced Metering Infrastructure  
 CEMS : Community Energy Management System , EV:Electric Vehicle  
 HEMS : Home Energy Management System , BEMS : Building Energy Management System ,

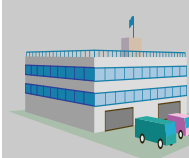
# 4-8. Constructing Global Manufacturing and SI Bases

## Promoting Local Operations

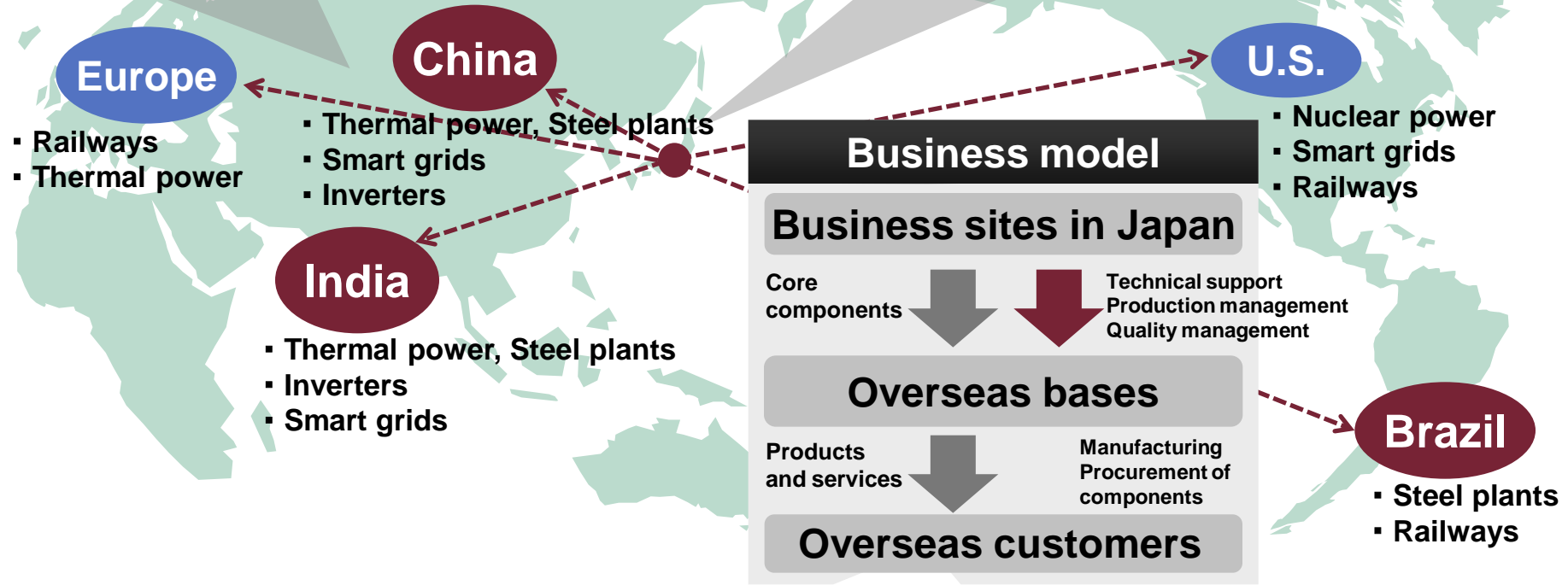


- Localization of production, assembly and SI (through joint ventures and partnerships)
- Use sales network of Hitachi Group company partners

## Advancement of Production Technology



- Advance production technology using IT (visual production guidance, RFID production management)
- Standardize MONOZUKURI processes and quality management



**Establish a position as a solutions partner in growing markets**

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## Contents

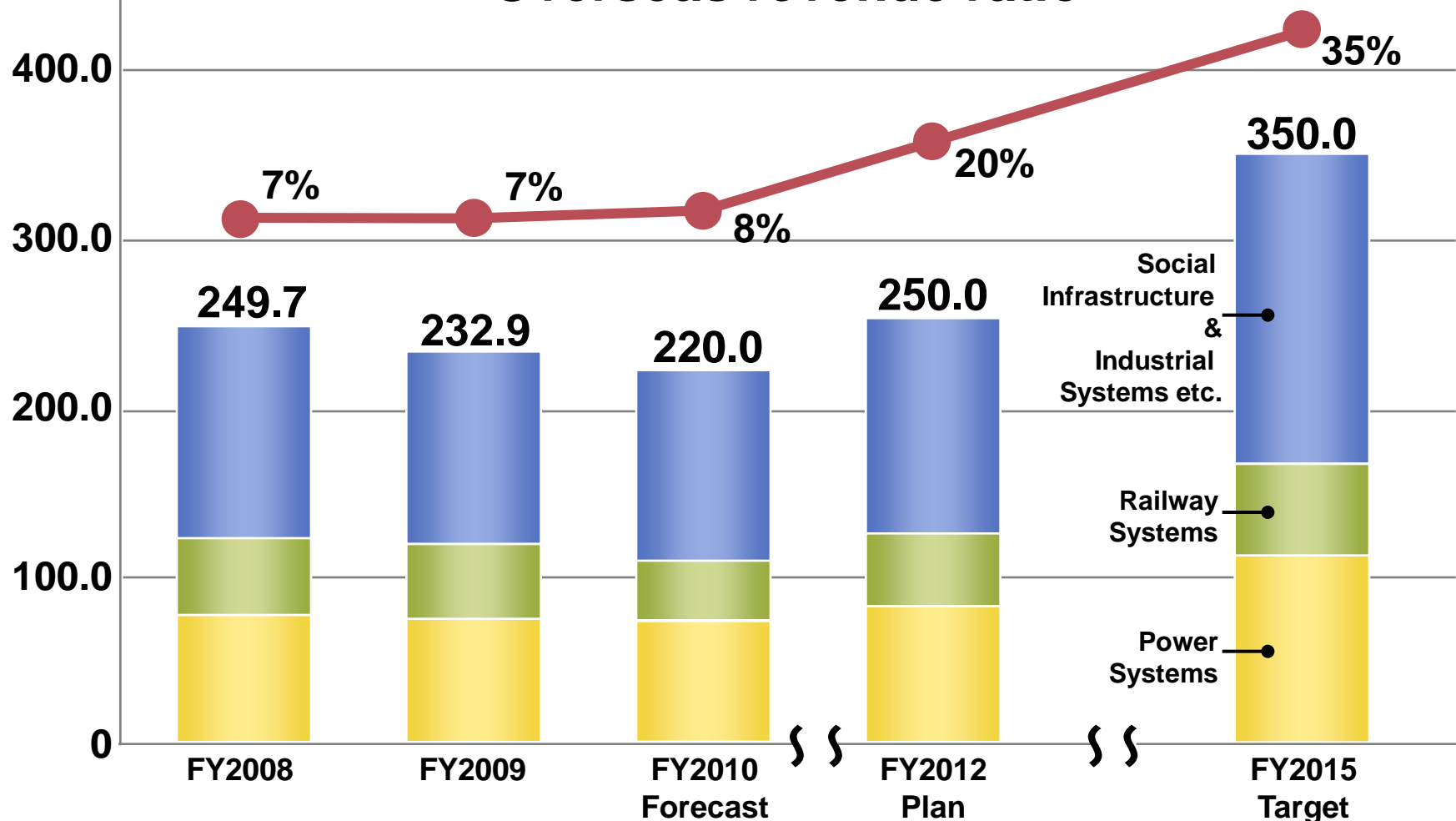
1. Business Overview
2. Market Trends
3. Performance Targets
4. Growth Strategy
- 5. Conclusion**



# 5-1. Conclusion (1) Results

Revenues  
(Billion yen)

## Overseas revenue ratio



(\*) Revenues are included separately those of Information & Telecommunication Systems Company, Power Systems Company, and Social Infrastructure & Industrial Systems Company.

### FY2015 Targets

- **Revenue: ¥350.0 billion**
- **Overseas revenue ratio: 35%**

**We will drive the Social Innovation Business through Smart & Smooth social infrastructure systems that fuse information and control.**

# Cautionary Statement

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 investments in Hitachi’s major markets, particularly Japan, Asia, the United States and Europe, as well as levels of demand in the major industrial sectors which Hitachi serves, including, without limitation, the information, electronics, automotive, construction and financial sectors;
- exchange rate fluctuations for the yen and 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 in Japan, 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 Components & Devices and the Digital Media & Consumer Products segments;
- uncertainty as to Hitachi’s ability to continue to develop and market products that incorporate new technology 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 and synthetic resins;
- 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;
- 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 socio-economic and political conditions and the regulatory and trade environment of Hitachi’s major markets, particularly Japan, Asia, the United States and Europe, including, without limitation, direct or indirect restrictions by other nations on imports, or 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 in Japan by earthquakes 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 and that of its customers;
- uncertainty as to the accuracy of key assumptions Hitachi uses to value 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 Hitachi’s periodic filings with the U.S. Securities and Exchange Commission and in other materials published by Hitachi.

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