

# Information & Control Systems Business Strategy

Hitachi IR Day 2011

June 16, 2011

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## Information & Control Systems Business Strategy

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#### **1. Business Overview**

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

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





\*Revenues are included separately for the Information & Telecommunication Systems Company, the Power Systems Company, the Industrial & Social Infrastructure Systems Company and the Rail Systems Company

Provide optimal systems to operate and manage social infrastructure. Drive the Social Innovation Business with solutions fusing information and control technologies.

## **1-2 Business Overview**

**Power Systems** 

Power generation

#### Wide application scope from information to control systems

**Railway Systems** 



(Thermal/pumped hydro),power transmission and distribution monitoring and control systems



Direct current transmission systems



Electic CIS solution AMI systems Railway IC card systems Digital signage systems

Traffic control

systems

Seat reservation systems





#### Social Infrastructure & Industrial Systems

Road traffic control systems

Water supply and sewage monitoring and control systems



Steel/industrial control systems

Earthquake Occurrence

Safety confirmation systems "Anpi-no-Ban'nin"

#### **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 ComponentsInformation platformsControl componentsPower electronics productsServersFinger vein<br/>Authentication<br/>access-control<br/>systemControl servers<br/>LippingElC integrated<br/>controllersUPS\*<br/>LippingHigh-voltage inverters<br/>LippingPower converters<br/>Lipping

- \* AMI : Advanced Meter Infrastructure
- \* EIC : Electricity, Instrumentation, Computer
- •UPS : Uninterruptible Power Supply
- •CIS: Customer Information System

## 1-3 System Examples (1)

#### **Power Systems**

# Kyushu Electric Power Co., Inc. electricity transmission IT system

Overview of Customer Response Process Operates from May 2010



Support customer promptly and accurately by mapping on-site workers with GPS-equipped Hand-held device.

Fulfill "On-site Concluding Operations" utilizing mobile terminals.

#### **Railway Systems**

# JR Kyushu Shinkansen centralized operations management system

(All lines in March 2011 and the start of through services )



Achieves high reliability and high-speed processing by employing built-in redundancy in system structure and fault tolerant (FT) systems

Formulate high-level operational function as a system by aligning train schedule management (information system) and real-time automatic track control (control system).

## 1-4 System Examples (2)

#### **Social Infrastructure Systems**

Kashiwa City Water Department Water distribution control system



**Upgraded March 2010** 

Yielded approx. 8% energy savings and stable water distribution to the entire city from reservoirs in 7 locations.

Plan to offer globally as outstanding Japanese water management technology (Raises efficiency, lowers leakage rate)

#### **Industrial Systems**

#### Mori Building Energy Web system

Contributes to the area with surplus electricity created by energy conservation in buildings



#### Offer to other parties jointly with Mori Building

Offering cloud-based environmental information management services compliant with the 2010 amendments to the Law Concerning the Rational Use of Energy to Funabashi city, Zen-Noh, Starbucks, Asahi Glass Co., Ltd. and other parties.



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#### Continuous expansion in the global social infrastructure systems market

#### Increasing global demand for infrastructure systems

Infrastructure Information and Control Systems Market\*

#### (Trillion yen)



#### Increasing needs for next-generation infrastructure systems

Large-scale urban development in developing countries and investments to upgrade infrastructure in industrialized nations to create a low-carbon society (Smart grids, high-speed railways, etc.)

Expectations for resilient and restorable infrastructure following the Great East Japan Earthquake (Community-led, safe and secure towns, renewable energy utilization, etc.)

**Expand Social Innovation Business** by providing total solutions fusing information and control technologies

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

## 2-2 Demand for Social Infrastructure





Next-generation infrastructure systems that connect social infrastructures and life with IT

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## **2-3 Competitive Environment**

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#### Realize Balance between Comfort(Life) and Efficiency (Infrastructures) with Information and Control Solutions



#### Hitachi

Group companies have been developing businesses, collaborating in a wide range of fields

The Information & Control Systems Company provides one-stop total solutions from control systems to information systems.



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## **3-1 Business Policy and Growth Strategy**

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

Growth strategies	Action Plans	
Promote the total solution business based on information and control technologies	Power Systems	: Promote next-generation smart grid solutions, extending from power generation, transmission and distribution to consumer systems
	Railway Systems	: Promote total solutions for railways, extending from railway control to passenger services
	Social Infrastructure & Industrial Systems	
		: Develop next-generation infrastructure
	- Introduce total water environment systems extending from water desalination to use and reuse - Use plant information to increase efficiency and automation of operations and maintenance	
Expand business in global growth markets	Develop regionally, centered on the social infrastructure systems market in emerging countries (such as China and India) Accelerate localization of manufacturing, sales and services Respond to demand for upgrading infrastructure in industrialized nations - Enter the smart grid market starting from demonstration projects - Introduce next-generation infrastructure systems to contribute to Japan's rebuild following the Great East Japan Earthquake	
Proceed to make	Reinforce business	base
strategic	Promote development of core business platforms	
investments	Fromote developme	ant of core pusitiess platforms

# **3-2** Promoting the Total Solution Business (1) Power Systems

DMS : Distribution Management System

BEMS : Building Energy Management System HEMS : Home Energy Management System

EAM : Enterprise Asset Management

: Electric Vehicle

EV

# Promote next-generation smart grid solutions, extending from power generation, transmission and distribution to consumer systems

#### Increased business efficiency **Power system infrastructure Business Initiatives** of operators Large-scale integrated power supply **Optimal control of entire power** arid Solar power Wind power **Provide next-generation solutions** Enterprise asset management for smart grids (EAM) Information (System analysis, EMS, DMS, Sales support systems AMI, Storage battery control, Transmission grid EV charging, etc.) **EMS** DMS **Electricity** Transformer Information Promote demonstration projects substations **Distribution grid** and international standardization Storage battery of solutions control systems Electricity (Hawaii, Spain, etc.) AMI EV-EMS Contribute to Japan's rebuilding **BEMS/HEMS** centered on energy infrastructure (Future city model projects, etc.) V charging management system EMS : Energy Management System

Respond to the increase of distributed power sources and EVs

Enhanced consumer services

Visualization of demand

# **3-3** Promoting the Total Solution Business (1) Power Systems

#### Example: Spain Demo

Demonstration of smart city in Europe, where power supply has been deregulated

EV / Green Mobility promoting project (joint project with Mitsubishi Corporation & Mitsubishi Heavy Industries, Ltd.) Test demonstration of large scale EV installation & dissemination model in collaboration with Smartcity Malaga project.

Provide Electricity Management System aligning existing system and EV center.

Demonstrate information control platform that realizes optimally-controlled Smart City related infrastructures

Form collaborative relationships with local infrastructure companies

Electricity major : Endesa, S.A. Telecom major : Telefonica S.A. IT service provider: Sadiel

Extend to Europe and Latin America using partner companies' networks





# **3-4** Promoting the Total Solution Business (1) Power Systems

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## Example: Hawaii Japan-U.S. Collaborative Demonstration Project for World Leading Remote Island Smart Grids

#### Energy situation in Hawaii

Large-scale introduction of renewable energy (15% $\rightarrow$ 40% /2012 Plan)

Effective introduction of EVs (Moving around island, tourist image)

Establish model using large volumes of renewable energy

Cutting-edge technology demonstration and business model verification of smart grids that anticipate future issues

Establish stabilized system tied with DMS and µDMS

Direct control of solar power generation device, EVs, water heaters, storage batteries and others via M2M communications

Installation of cutting edge cyber security measures

Evaluate economic viability with experts







# Promote total solutions for railways, extending from railway control to passenger services



IEP : Intercity Express Programme

## **3-6** Expanding Business in Global Growth Markets (1)

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#### Develop regionally, centered on the social infrastructure systems market in emerging countries

#### China

- Strengthen local bases to expand control systems business (Steel plant, thermal power, wind power, water treatment and storage battery)
- Promote smart city projects to establish solution and extend business (Tianjin, Guangzhou, Dalian, etc.)

#### India, Asia (Excluding China)

- Enter plant control systems business (Steel, thermal power, power electronics, etc.)
- Expand social infrastructure business in step with industrial infrastructure business

(Delhi Mumbai Industrial Corridor (Dahej) project in India)

#### Americas, Europe

- Enter smart grid market based on demonstration projects and extend to other areas (Hawaii, Spain, etc.)
- Enter railway traffic control and maintenance service systems business in collaboration with rolling stock business (U.K. IEP business, etc.)



## **3-7** Expanding Business in Global Growth Markets (2)

#### Accelerate localization of manufacturing, sales and services in emerging country markets



## **3-8** Expanding Business in Global Growth Markets (3)

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#### China

#### Promote Demonstration Projects to enter Smart City and Smart Grid Market

Strengthen local bases to expand control system business

Reinforce local engineering resource Increase the number of SE Establish local development force in cooperation with HCR&D

Enhance production capability of power electronics devices Converter, UPS, etc.

Establish JVs with local leading companies to expand business of infrastructure control system

#### Establishment of solution and extending by promoting smart city actual project

Promoting smart city projects Sino-Singapore Tianjin Eco-City Began receiving orders for HEMS and battery storage systems (Sept. 2010) Cooperating in building Guangzhou Knowledge City (January 2011) Cooperating in Social Innovation Business, etc., in Dalian City (May 2011)



#### India

Expand business domains through entry from plant control systems business

#### Enter plant control systems market

Offer power electronics and its application control system suit for stable plant operations and energy conservation

Develop local capabilities through partnering Local production :Power electronics Local engineering :DCS for thermal power plant Electrical machinery control systems

Expand social infrastructure business in step with industrial infrastructure development projects

Promote total solution business extending from electric power, water treatment, transportation and IT in cooperation with Hitachi Group companies (Delhi Mumbai Industrial Corridor project)

Expand business domains stating from rolling mill control systems for major steelmakers (Major order for hot mill system from Tata Steel: June 2011)



Delhi Mumbai Industrial Corridor project (Feasibility study for mega industrial infrastructure development)



## **3-10 Promoting Strategic Investments**

#### **Bolster business base and Develop platforms**

### **Key Investments**

Self verification of EMS

solar power generation, storage battery system

AMI, µDMS, information control platform

Strengthen BCP response (Production, infrastructure, lifelines, etc.)

Develop information control system platforms for supporting social infrastructure

Develop administrative platforms for supporting social infrastructure operation and maintenance Demonstrate dispersed EMS that enhances BCP

Boost Smart City / Smart Grid business based on the outcomes of internal and external demonstration and comprehensive verification of new solutions

Contribute to Hitachi city Future City Project





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## **4** Business Performance Trends and Targets

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## FY2015 Targets

## Revenues: ¥350.0 billion

## Overseas revenue ratio: 35%

## Drive the Social Innovation Business by providing total solutions fusing 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 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 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 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 and synthetic resins 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 in Japan by earthquakes, tsunamis or other natural disasters, including the possibility of continuing adverse effects on Hitachi's operations as a result of the earthquake and tsunami that struck northeastern Japan on March 11, 2011;

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 Hitachi's periodic filings with the U.S. Securities and Exchange Commission and in other materials published by Hitachi.

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