Fuji Electric
Innovating Energy Technology

FY2015 Medium-Term Management Plan
Power and Social Infrastructure Business

August 26, 2013

Fuji Electric Co., Ltd.
Power and Social Infrastructure Business Group

Contents

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- Business Overview
- Business Targets
- Business Strategies / Priority Measures
  - Power Plant
  - Social Engineering Systems

Business Overview

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Power Plant

Thermal power generation

- Medium-capacity thermal power generation
- Combined-cycle power generation
- Biomass power generation

- Focus on medium-capacity thermal power generation systems
- Proven technology based on the experiences from large-scale combined-cycle power generation systems
  Yoshinoura Thermal Power Station (250MW × 2)
- Superior experience from ultra- supercritical steam turbine
  Isogo Thermal Power Station (600MW)

Hydroelectric power generation

- Large-scale hydroelectric power generation
- Small- to medium- scale hydroelectric power, Micro hydroelectric power

- Cooperation with Voith Hydro of Germany (joint venture)
- Strengths with regard to vertical bulb turbines and other unique low-head hydropower generation technologies

Renewable energy

- Geothermal power generation
- Solar power generation (mega solar)
- Wind power generation

- 40% global share for flash steam geothermal power generation systems (past 10 years)
- Geothermal power generation technologies accumulated through operational experience over years
- Ability to offer renewable energy systems steeped by incorporating superior power electronics technologies

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Social Engineering Systems

Power systems

- **Smart community**
- **Electric power systems**
- **Smart meters**

Social environmental systems

- **Social environmental systems**

- **Implementation of various smart community proving tests and identification of benefits**
  Regional energy management system in Kitakyushu City, micro grids for isolated islands
  Eco industrial parks and power stabilization in Indonesia
- **Accumulated power transmission and distribution technologies**
- **Public infrastructure construction**

Social Information

- **IT solutions**
- **Cloud computing**

- **Cooperation with Fujitsu**
- **Construction of IT infrastructure for academic, public, financial, and industrial organizations**

Business Targets

Business Targets

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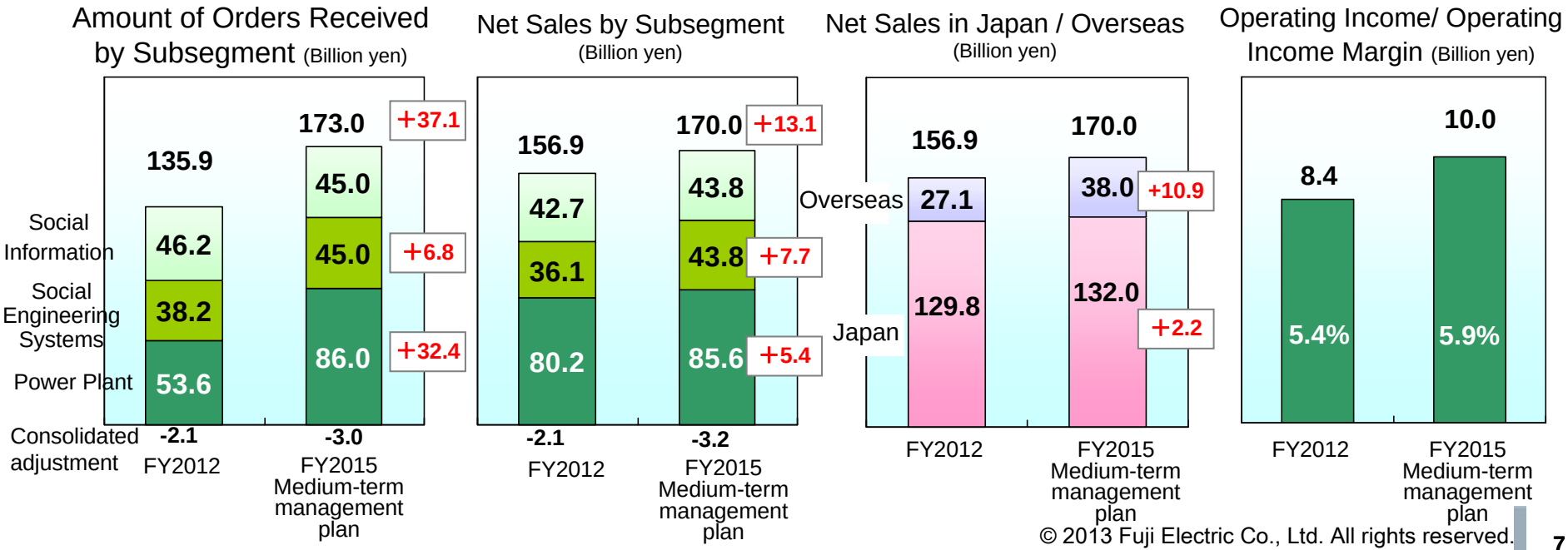
Basic Policies

Aim to achieve business growth in conjunction with expanding demand for electricity and social infrastructure development

- Expand orders and sales in Japan and Asia
- Expand business domains through technological innovation
- Improve profitability through innovation activities targeting production processes and by strengthening purchasing capabilities



Power Plant
Business Strategies / Priority Measures

Power Plant Market Trends (Worldwide)

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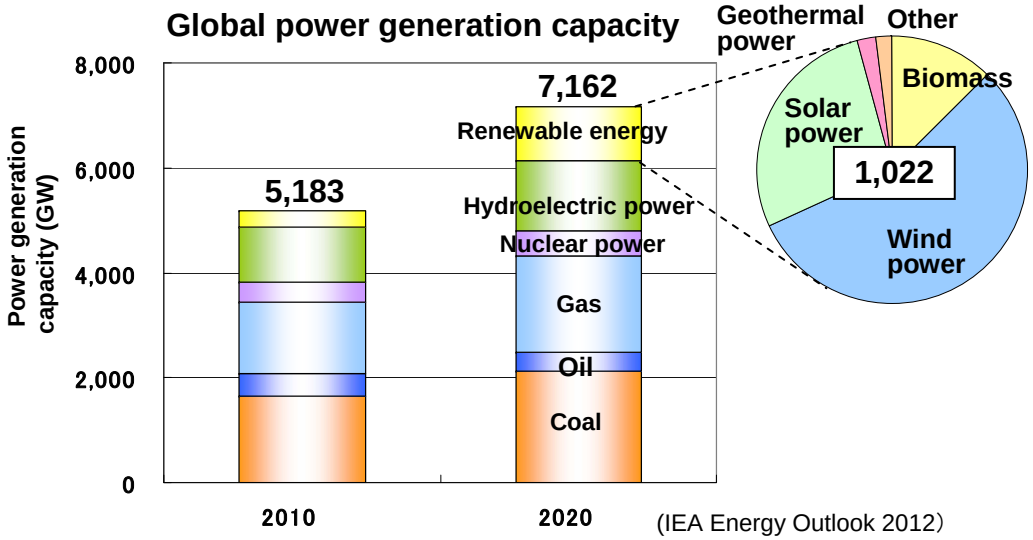
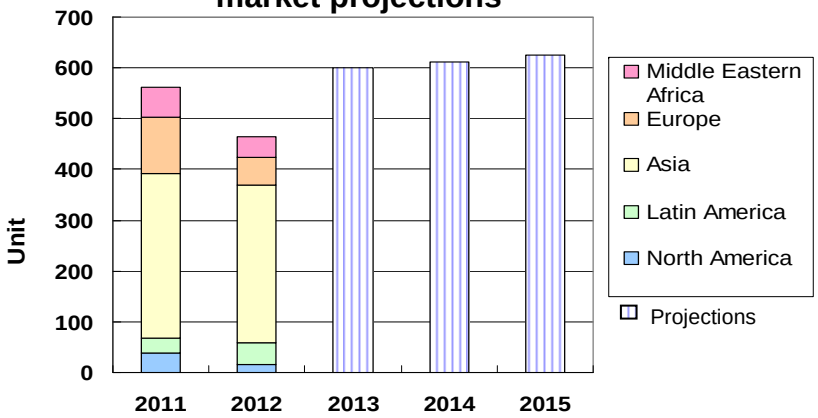
Ongoing global growth in electricity demand and generation capacity

Global power generation capacity



(IEA Energy Outlook 2012)

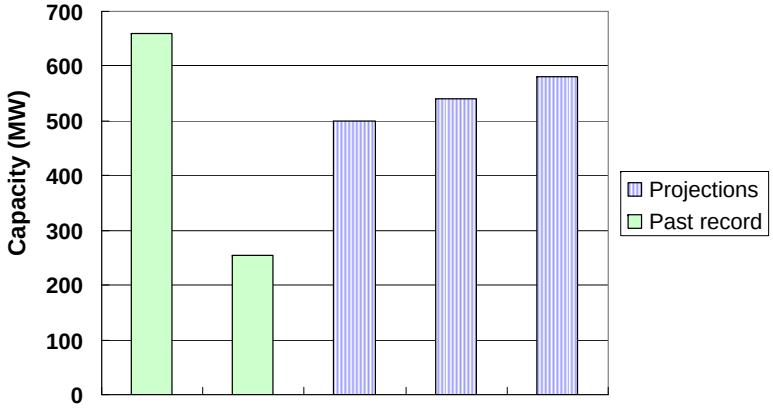
Global thermal power generation market projections



(McCoy Power Reports and Fuji Electric's estimate)

- **Annual growth rate of 2.2% for global energy demand**
  - Developed nations: 0.9% annual growth
  - Emerging nations: 3.3% annual growth
- **Growth in gas usage to reduce CO_2 emissions, also growth in coal usage in pursuit of economic performance**
  - Growth in combined-cycle gas turbine demand centered on developed nations
  - Growth in coal-fired thermal power plant demand centered on Asian and other emerging nations
- **Promotion of geothermal power generation system introduction by government measures and deployment subsidies**
  - Accelerated deployment of geothermal power generation system in Central and South America and Africa, following pace with Indonesia

Global geothermal power generation market projections



(McCoy Power Reports and Fuji Electric's estimate)

Power Plant Market Trends (Japan)

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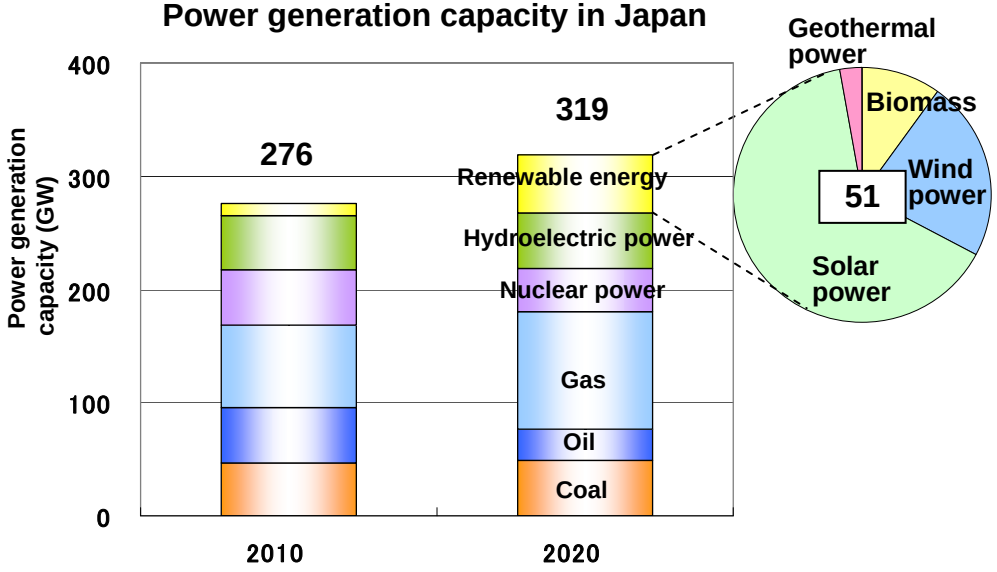
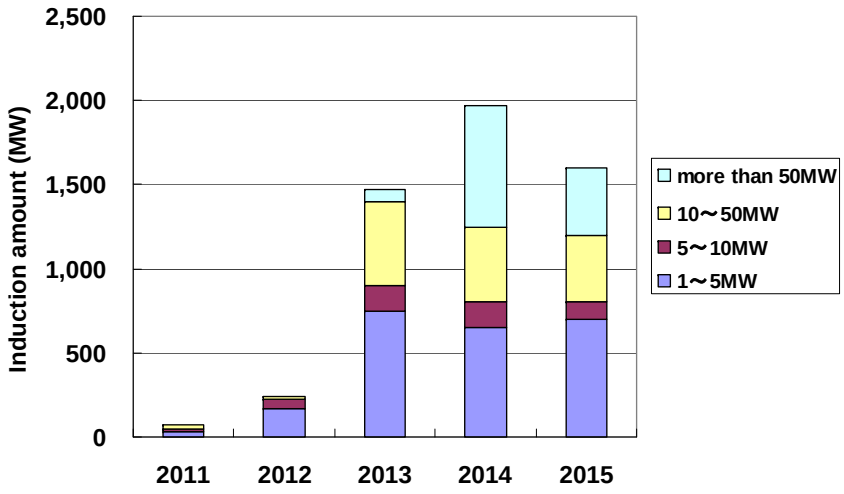
Progressive installation of large-scale thermal power plants and renewable energy systems

Power generation capacity in Japan



（IEA Energy Outlook 2012）

Mega solar power market projections in Japan



(Yano Research Institute Ltd. and Fuji Electric's estimate)

Thermal power generation market trends

- Reinforcing thermal power generation in ensuring stable supply of electricity
- Progressive installations of highly efficient coal-fired thermal power generation systems using supercritical steam turbines and combined-cycle power generation systems
- Participation by IPPs and PPSs

Renewable energy market trends

- Progressive installations of solar power generation systems peaking in 2014
- Installation of solar power generation systems and now wind, small- to medium-scale hydro, and geothermal power generation systems

Power Plant Business Strategies / Priority Measures

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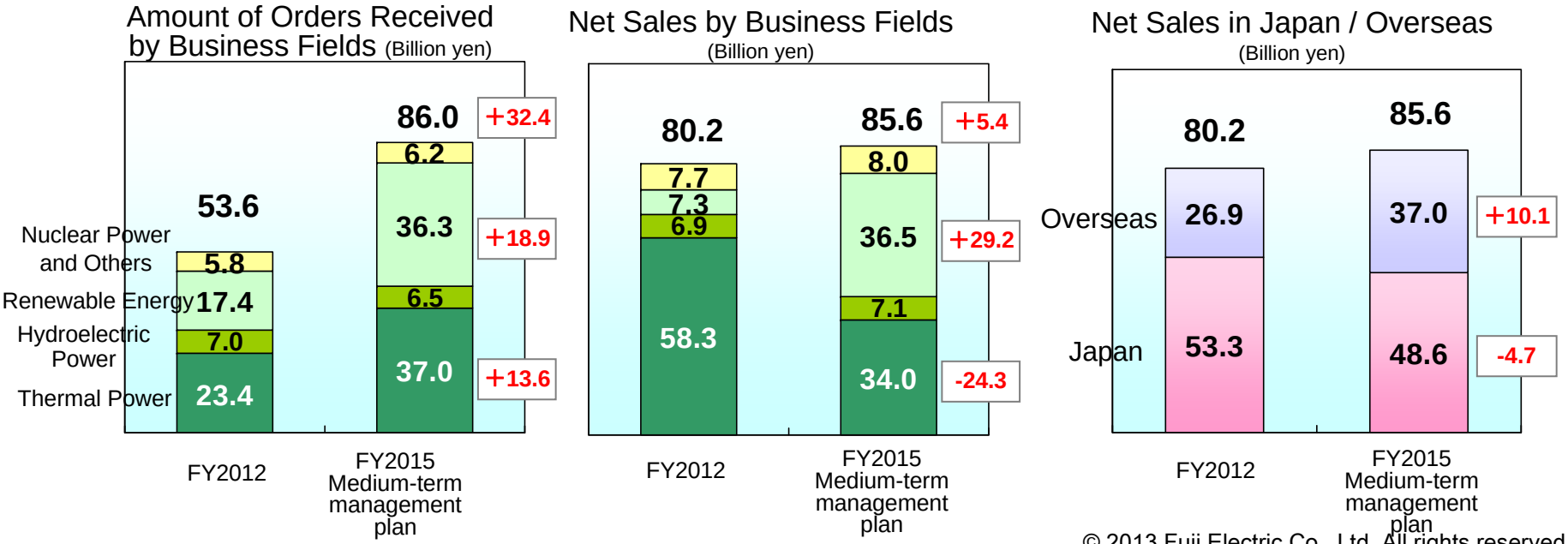
Aim to achieve business growth in conjunction with expanding demand for electricity

- Expand sales of thermal and geothermal power generation systems in regions with growing electricity demand such as Asia and Near and Middle East
- Increases sales by strengthening mega solar plant engineering capabilities
- Advance business measures for increasing sales for next medium-term management plan
  - Participate in domestic large-scale thermal power generation market
  - Expand orders for wind, small- to medium-scale hydro, and geothermal power generation systems



Power Plant Priority Measures (Thermal Power)

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Strengthen technological capabilities related to thermal power generation	• **Develop technologies to improve the efficiency and reliability of turbines and generators and boost the competitiveness of such technologies**
Expand orders and sales in regions with growing electricity demand such as Asia and Near and Middle East	• **Expand orders through increased coordination with partners (EPC)**
Participate in domestic large-scale thermal power market	• **Participate in market for coal-fired thermal power generation systems using ultra-supercritical steam turbines (power companies, IPPs)** • **Participate in market for combined-cycle power generation systems (power companies, IPPs)** • **Introduce Siemens' state-of-the-art high-performance gas turbines**
Strengthen service business and expand sales	• **Develop technologies for modernizing and boosting the output of existing equipment** • **Establish local engineering systems for service business**

Haiphong Coal-Fired Thermal Power Station in Vietnam

Yoshinoura Thermal Power Station

Power Plant Priority Measures (Renewable Energy)

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Solar power systems

Expand orders and sales of mega solar systems

- Expand orders and sales by leveraging plant engineering capabilities
- Strengthen technological capabilities through cooperation with German solar power generation system engineering company
- Develop operational support systems for solar power generation (cloud-based)
- Boost competitiveness by developing and commercializing SiC-equipped PCSs

Geothermal power generation systems

Expand orders and sales of large-scale flash geothermal power generation systems

- Continue strengthening operations in Asia, expand orders in Central and South American and African markets
- Strengthen competitiveness through the development of highly efficient and reliable turbines

Participate in binary geothermal power generation market

- Accelerate efforts to capture orders in markets where binary geothermal power generation systems are attracting attention such as the Americas and New Zealand
- Develop technologies for improving the efficiency of hybrid geothermal power generation systems incorporating flash steam power plants and expand orders for these systems
- Leverage technologies and experiences for overseas geothermal power generation systems to capture geothermal orders in Japan (medium-scale facilities, generation from hot springs)

Wind power / hydroelectric power

Expand orders for wind power and small- to medium-scale hydro electric power generation systems

- Develop and expand orders for generators and PCSs for large-scale wind power generation systems
- Expand orders for low-head hydro electric power generation systems and micro turbines

Mega solar system known as
Southern Alps Energy Park
at Fuji Electric's Yamanashi Factory

Hachijo-jima Geothermal
Power Plant

Social Engineering Systems Business Strategies / Priority Measures

Social Engineering Systems Market Trends

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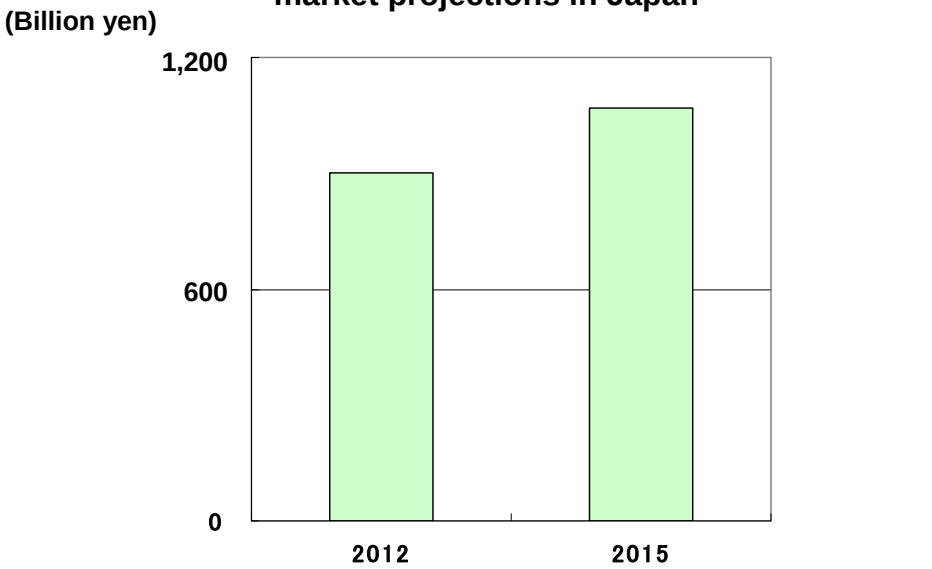
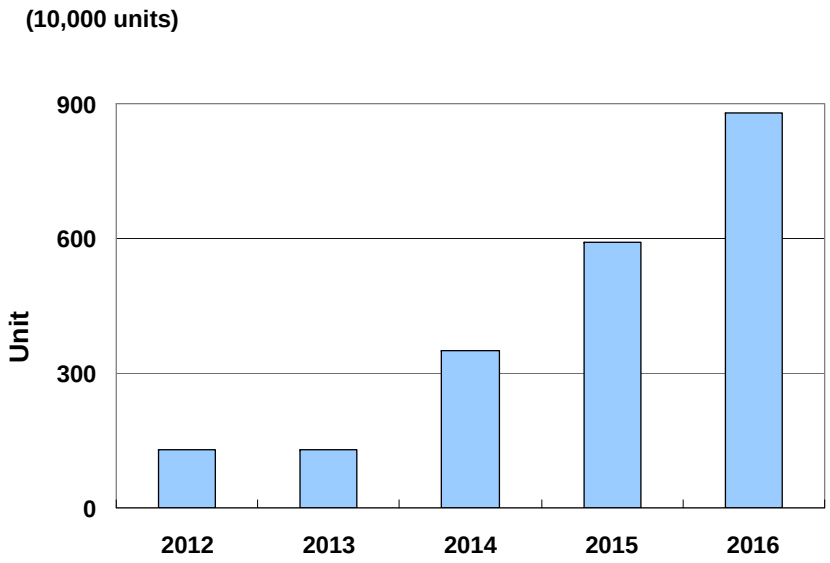
Progressive development of next-generation electric power systems and expansion of smart community businesses

Electric power distribution and smart community market projections in Japan



(Advanced Management (electric power distribution, EMS and electric power storage))

Smart meter market projections



(Fuji Electric's estimate)

Power system market trends

- **Capacity bolstering of power systems and development of next-generation systems in response to rise in renewable energy systems and dispersed power sources**
- **Introduction of electricity storage systems to stabilize power grids**
- **Expansion of smart communities**
  -Optimal control and efficient operation of energy, energy saving

Smart meter market trends

- **Introduction of unit-type smart meters commenced in 2012**
- **Full-fledged introduction of smart meters to start in 2014**

Social Engineering Systems
Business Strategies / Priority Measures

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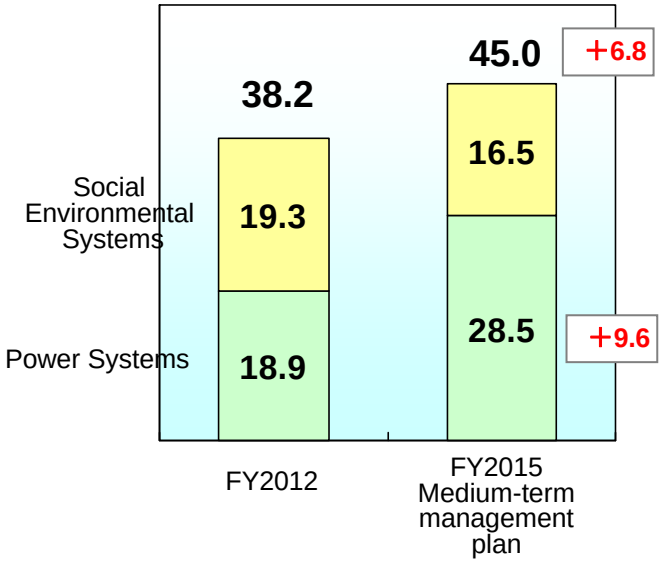
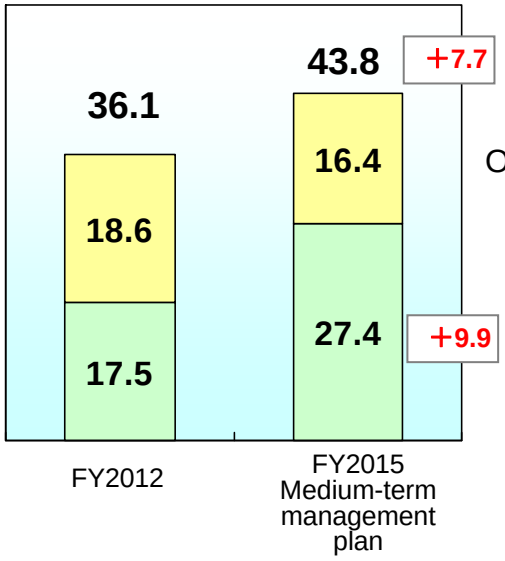
Aim to achieve business growth against the backdrop of efforts to realize the stable supply of electricity and create a society filled with smart communities

- Commence full-fledged development of smart community operations
- Strengthen development efforts and increase sales in electric power system operations
- Expand sales of smart meters

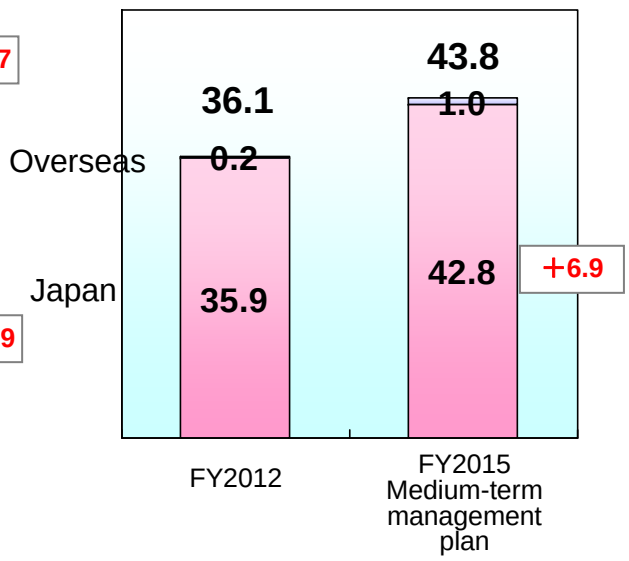
Amount of Orders Received by Business Fields (Billion yen)



Net Sales by Business Fields (Billion yen)



Net Sales in Japan / Overseas (Billion yen)



Social Engineering Systems
Priority Measures (Power Systems)

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Smart communities

Commence full-fledged development in Japan

- **Construct smart community platforms**
- **Commence full-fledged development of cluster energy management systems**
  Electricity supply-demand balance prediction, demand response, regional dispersed power sources, energy saving
- **Expand orders as BEMS, MEMS, and REMS aggregator**

Develop operations overseas

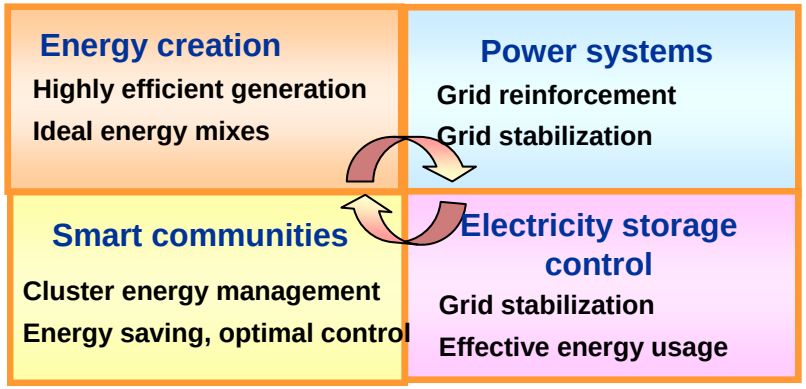
- **Expand orders for micro grids for isolated islands and energy supply systems for industrial parks**

Electric power systems

Develop systems and expand orders

- **Construct next-generation grid systems by utilizing power electronics technologies**
- **Develop electricity storage control technologies to stabilize grids**
- **Develop electricity control equipment utilizing SiC devices**

Spread of Power Systems and Control Systems



Cluster energy management system in Kitakyushu City

Smart Community Proving-Test Projects

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Proving-test projects

Nago, Okinawa/mega solar
Dispersed power sources / grid stabilization
Ministry of Economy, Trade and Industry
Smart power network/power distribution network voltage control

Kitakyushu smart community
Regional energy supply-demand optimization
Keihanna Science City
Building energy management
Aizuwakamatsu City
City development, electricity supply stabilization

Six isolated islands in Kyushu
Reduced power generation costs
Three isolated islands in Okinawa
Reduced power generation costs

Java, Indonesia
Eco industrial parks, power stabilization
Saudi Arabia / MODON
Eco industrial parks, environmental countermeasures
Thailand
Eco industrial parks, energy saving

Kumamoto Prefecture: Eco plastic greenhouses, solar power generation
Minamata: Making farming / fishing operations eco-friendly, CEMS
Convenience stores in Japan and overseas: Eco store

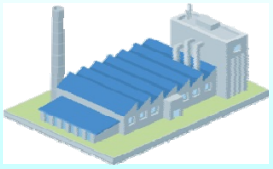
Full-Fledged Development

Smart grids

Smart cities

Micro grids

Smart industrial parks / factories



Smart distribution

Social Engineering Systems
Priority Measures (Power Systems)

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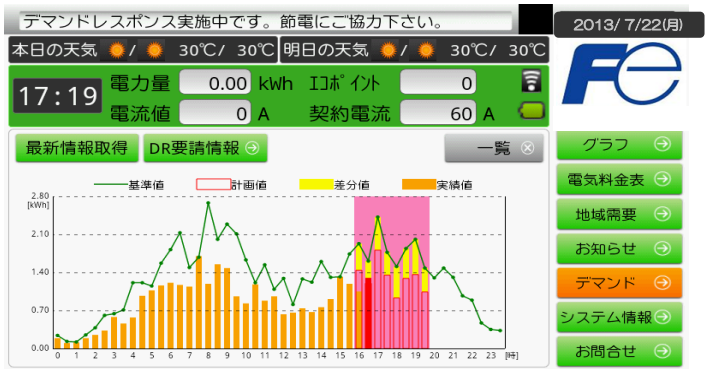
Smart meters

Expand orders and sales of smart meters	• **Develop technologies for and strengthen competitiveness of smart meters** • **Invest in production facilities and innovation activities from production process of smart meters**
Enter into new fields	• **Enter into meter data management system business** • **Expand into CEMS, BEMS, and other smart community businesses**

Smart meters



CEMS demand control

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