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FY2018 Medium-Term Management Plan

Power and Social Infrastructure Business

May 26, 2016

Fuji Electric Co., Ltd.

Power and Social Infrastructure Business Group

Contents

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- Business Overview
- Review of FY2015 Medium-Term Management Plan
- FY2018 Medium-Term Management Plan
  - Basic Policies
  - Business Plan
  - Market Trends
  - Priority Measures
  - Capital Investment / Research and Development

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Business Overview

Business Overview

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Contribute to the realization of a sustainable society by creating and optimally controlling energy

~Develop businesses with maximized environmental performance, efficiency, economic benefits, value, and innovation~

Power Plant

While focusing on small- to medium-capacity generation, able to cover large-capacity power generation

Thermal power

Cover wide range of output from small- to large-capacity (flash / binary)

Geothermal power

Cooperate with Voith Hydro of Germany.
Strength in low-head hydropower generation technologies

Hydroelectric power

Solar power

Wind power

Fuel cells

EPC and system equipment created using power electronics technologies

Provide high-performance, highly reliable industrial phosphoric acid fuel cells

Social Engineering Systems

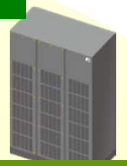
Smart meters

Japanese market share leader

Power distribution systems

Service for PPS

Supply and demand optimization of energy



Power system stabilizers

Optimal and stable supply and demand control

Power grids / electricity distribution

Diverse lineup of products compatible with revised electricity systems

Substations

Wastewater treatment systems

Wastewater treatment facilities

BEMS

FEMS

REMS

MEMS

Social Information

IT solutions

Cloud systems

Construction of IT infrastructure and provision of ICT support through business alliance with Fujitsu Limited

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Review of FY2015 Medium-Term Management Plan

Review of FY2015 Medium-Term Management Plan

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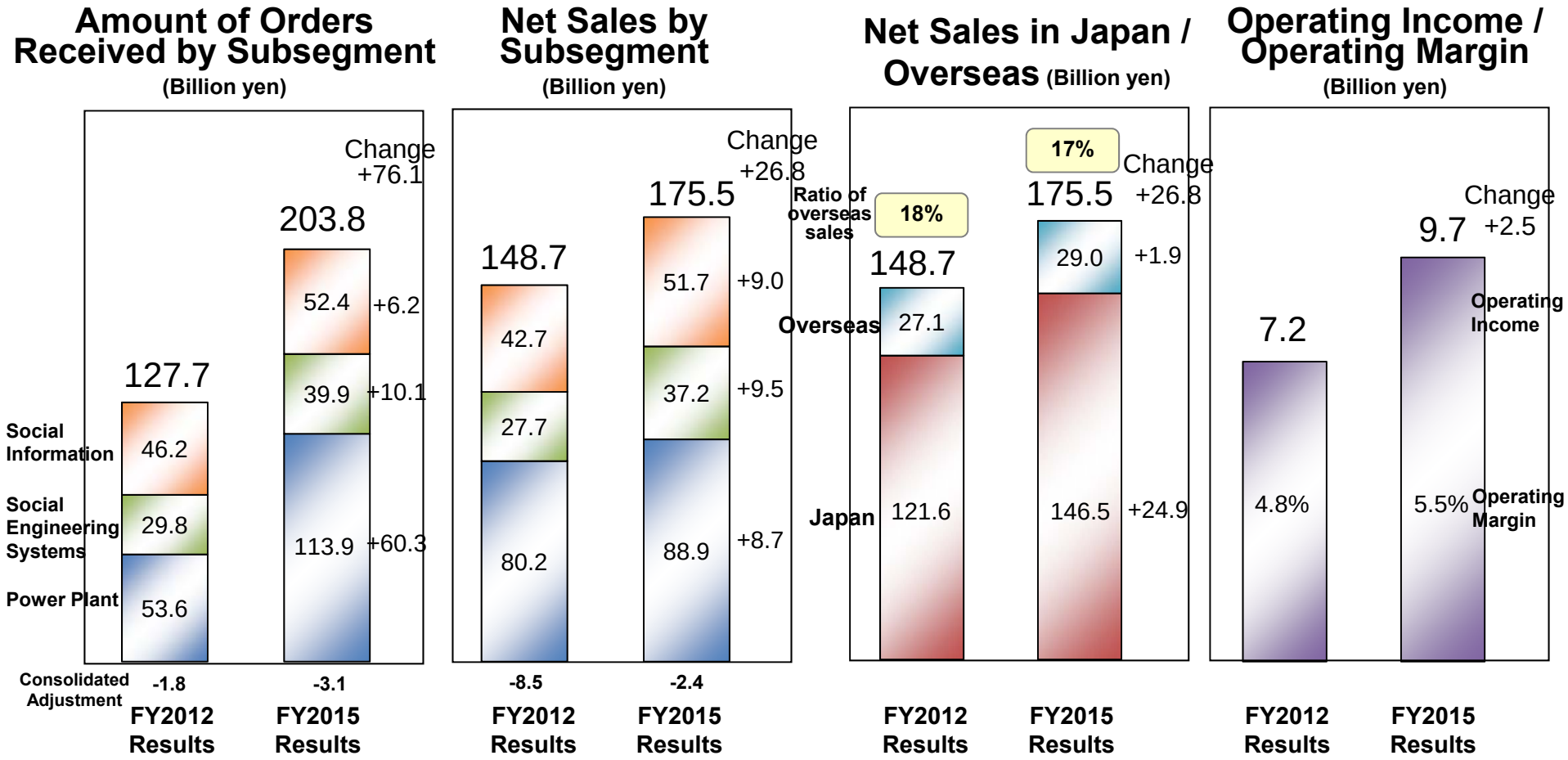
- Vs FY2012

Sales and income up centered on solar power generation systems and smart meters



* Figures for FY2012 reflect the organizational restructuring conducted in FY2015.

Results and Challenges (Review of Past 3 Years)

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Results of initiatives for strengthening business foundations

- Received large-scale domestic thermal power generation plant orders (GTCC, USC coal-fired thermal)
- Completed large-scale mega solar project
- Acquired orders for smart meters, established system for increased production and reduced costs
- Conducted M&As for expanding overseas businesses
  - ・U.S.: RTS (power plant after sales business)
  - ・Europe: Fuji N_2 (fuel cells)

Future challenges

- Operating businesses that preemptively address domestic FIT market changes and electricity system reform
- Expanding overseas operations (reaping benefits of M&As, developing solar power generation system operations overseas)

・GTCC: Gas-turbine combined cycle ・USC: Ultra-supercritical pressure ・FIT: Feed-in tariff

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FY2018 Medium-Term Management Plan

Basic Policies of Medium-Term Management Plan

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

- Power plant: Stably expand earnings through ongoing order acquisition centered on thermal and geothermal power generation plant and after sales business and fuel cell growth
- Social engineering systems: Develop business in consideration of accelerated smart meter initiatives and electricity system reform
- Social information: Accelerate and strengthen initiatives targeting new fields and growth fields amidst development of more-advanced IT infrastructure

Business Plan

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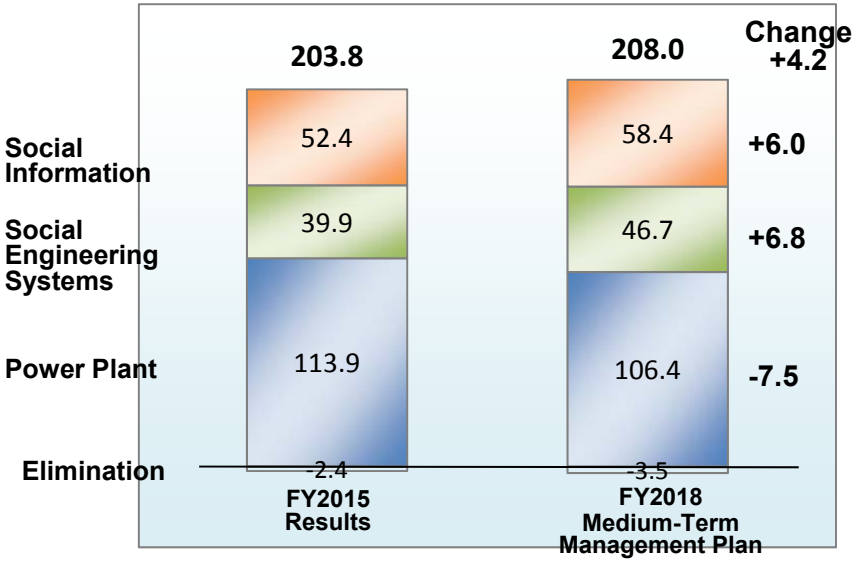
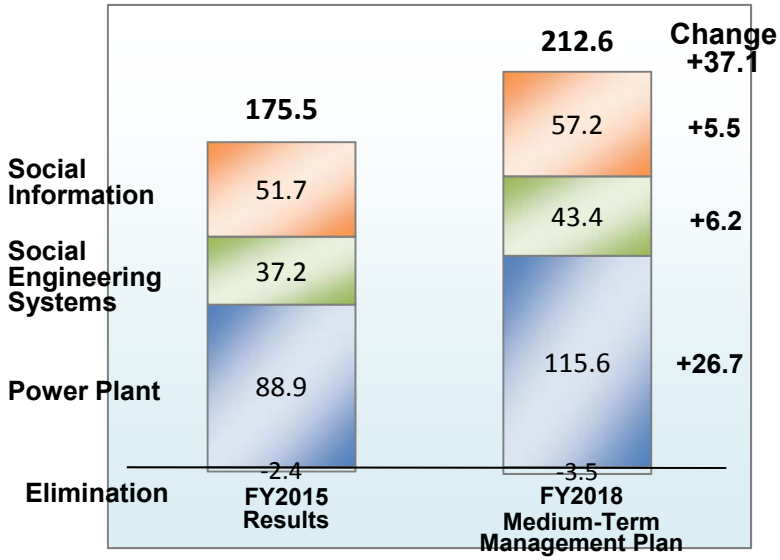
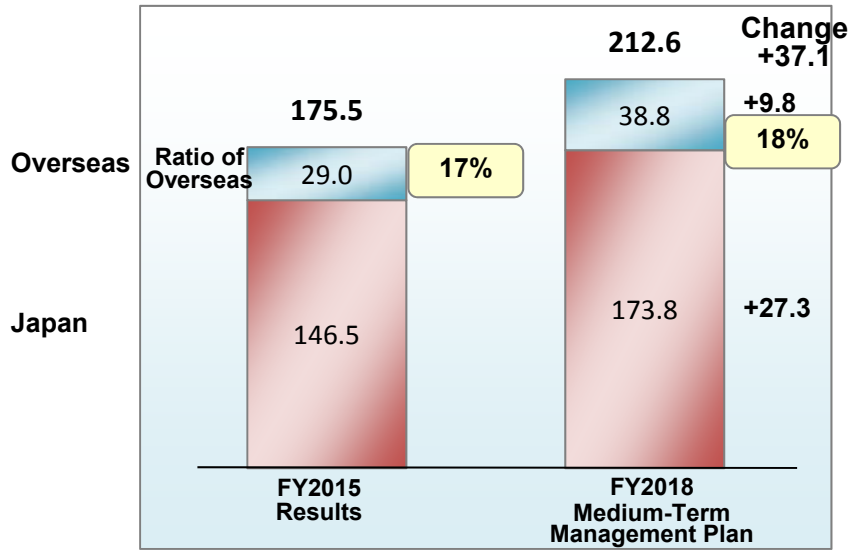
Amount of Orders Received (Billion yen)



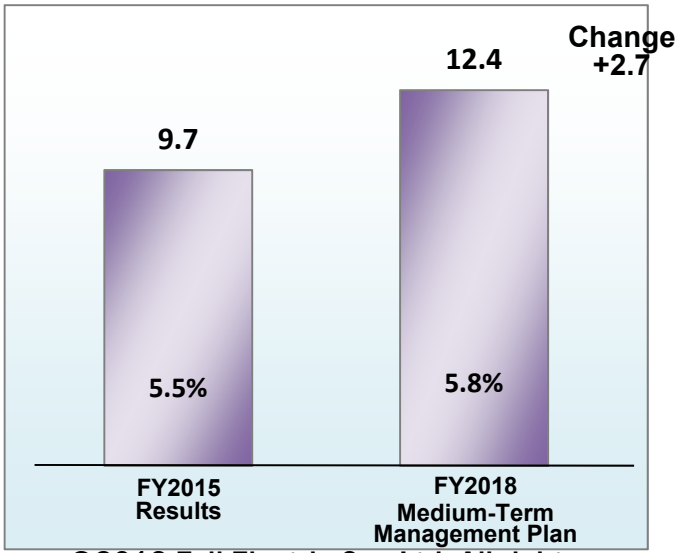
Net Sales by Subsegment (Billion yen)



Net Sales in Japan / Overseas (Billion yen)



Operating Income / Operating Margin (Billion yen)



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Power Plant

Power Generation Facilities Market Trends (Overseas)

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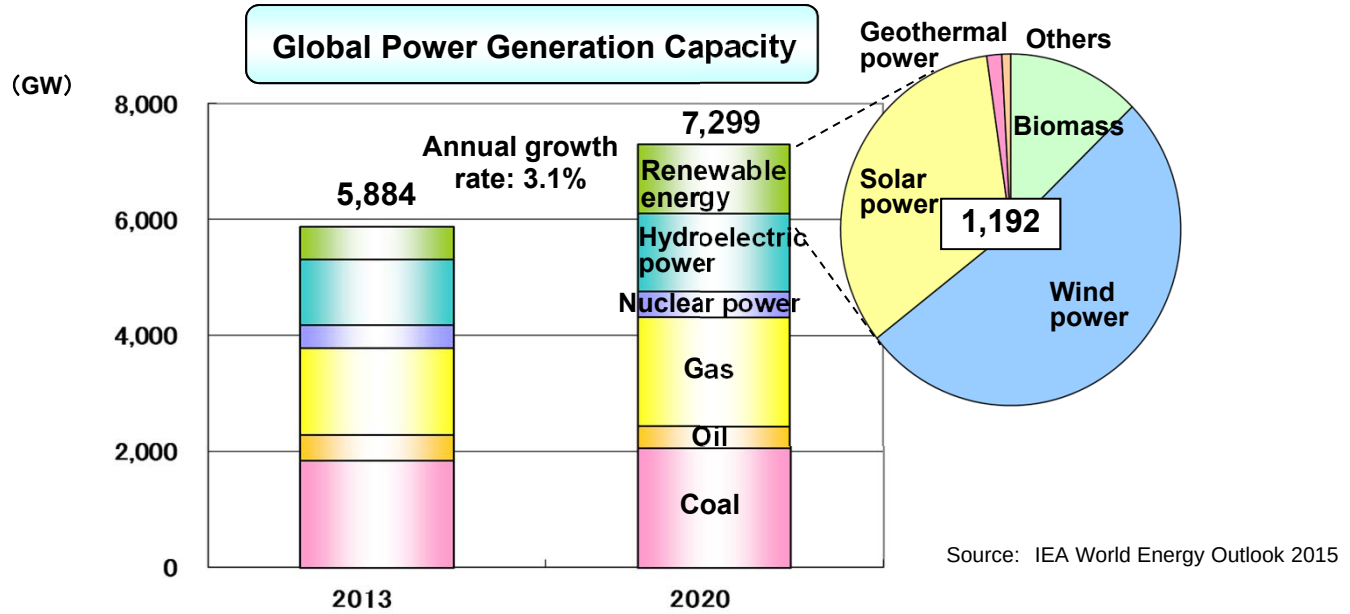
Continuing global growth in electricity demand and increasing installation of generation facilities



Source: IEA World Energy Outlook 2015

- Annual growth rate of 2.3% for global energy demand*
  - Developed nations: 0.7% annual growth
  - Emerging nations: 3.7% annual growth
- Improvement of economic performance through higher efficiencies, and reduction of environmental impact
- Promotion of geothermal power generation system introduction by government measures and subsidies
  - Rising demand in Africa, following trend in Indonesia

* Source: IEA World Energy Outlook 2015

Power Generation Facilities Market Trends (Japan)

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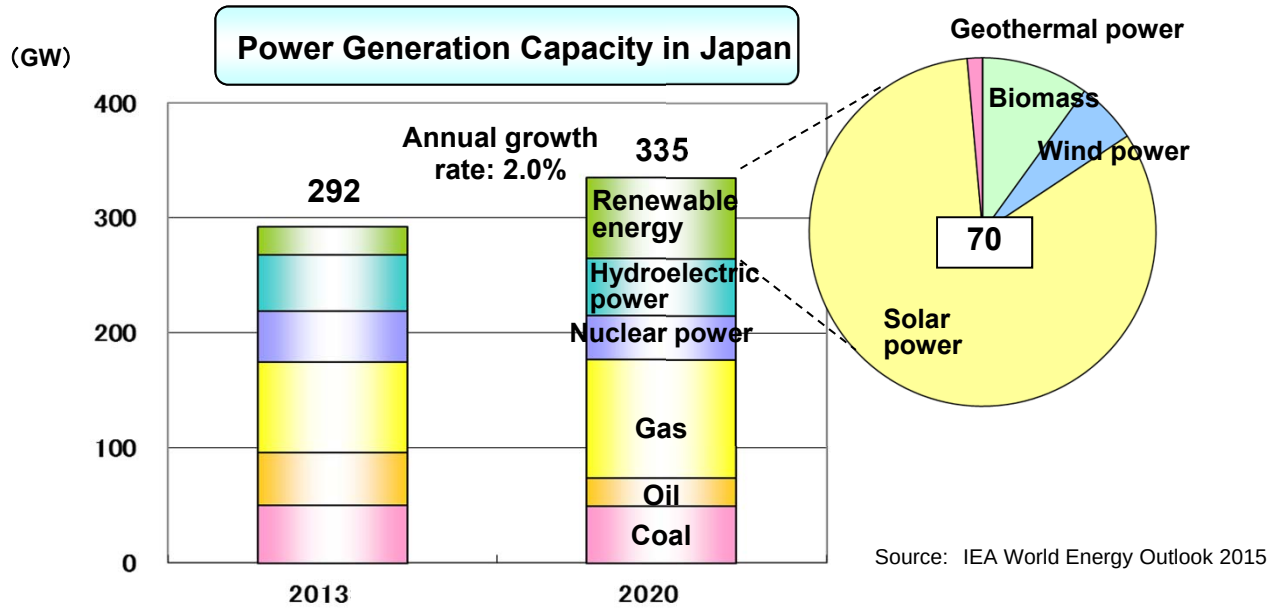
Ongoing introduction of environmental-regulation-compliant thermal power generation plants and renewable energy systems in Japan



Source: IEA World Energy Outlook 2015

- Continued expansion of thermal power generation centered on IPP and PPS operators
- Progressive installation of highly efficient thermal power generation plants (ultra-supercritical coal-fired thermal power, combined-cycle power, small- to medium-capacity reheat generation)
- Promotion of biomass, wind, and small- to medium-capacity geothermal power generation based on FIT and other government measures

Number of new power suppliers	Power producer and supplier: 799 (As of March 1, 2016) Small-scale electricity suppliers: 295 (As of May 12, 2016)

・IPP: Independent power producer ・PPS: Power producer and supplier

Mega Solar Market Trends

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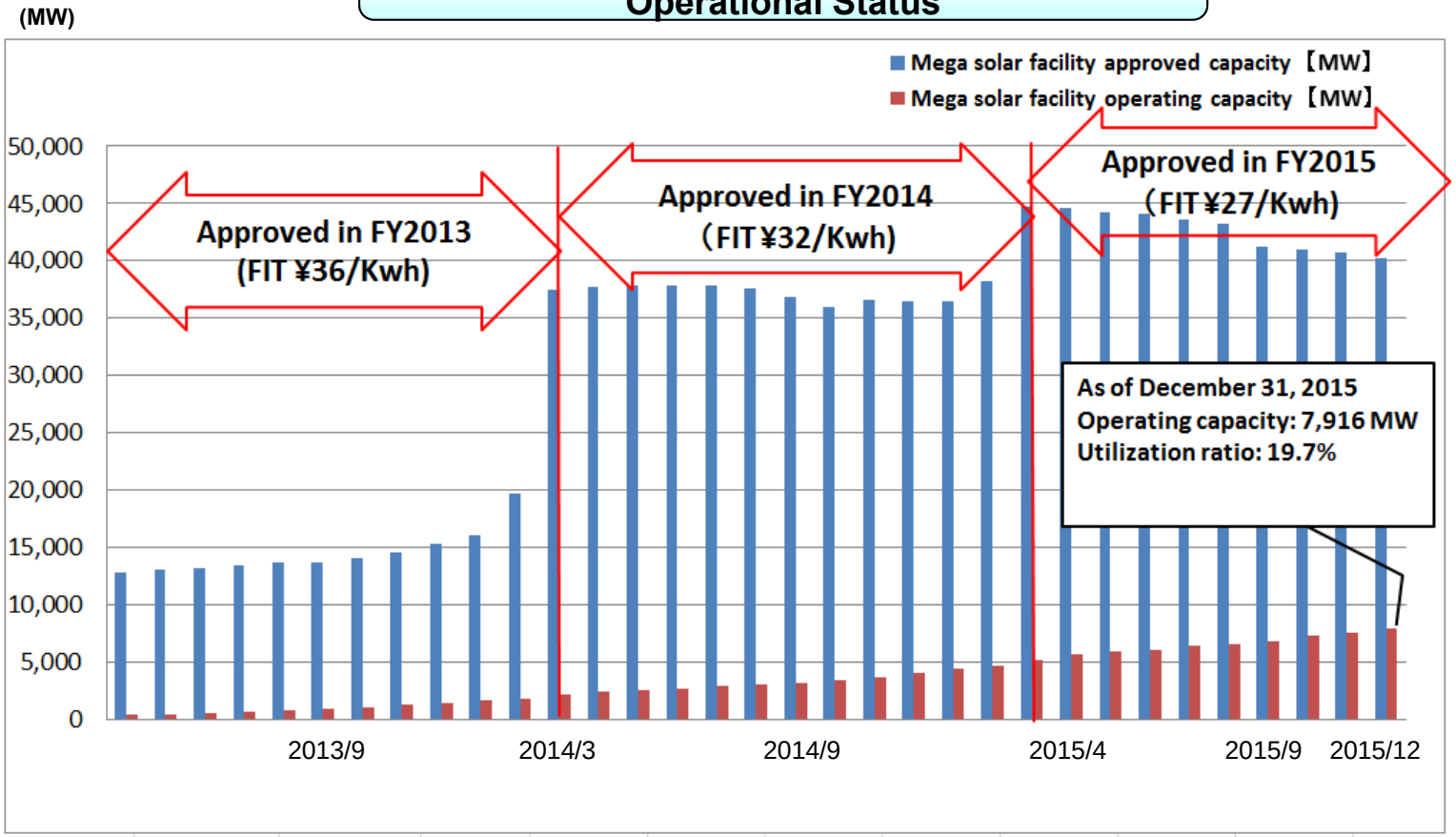
Japanese Mega Solar Facility Approval and Operational Status



Source: Agency for Natural Resources and Energy

- Only 20% of approved generation facilities operational (as of December 31, 2015)
- Ongoing demand for construction expected to last through 2018, but number of projects to decline gradually following abolition of approval system

Power Plant　Priority Measures

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Stably expand earnings through ongoing order acquisition centered on thermal and geothermal power generation plants and after sales business growth

- Acquire thermal and geothermal power generation plant orders and increase sales

  －Enhance competitiveness of thermal power generation plants and acquire orders by making more-efficient, higher temperature systems

  －Expand after sales businesses by utilizing RTS of the United States

- Further expand overseas fuel cell orders

- Continually acquire domestic solar power generation system orders while developing operations overseas (Asia)

Thermal Power

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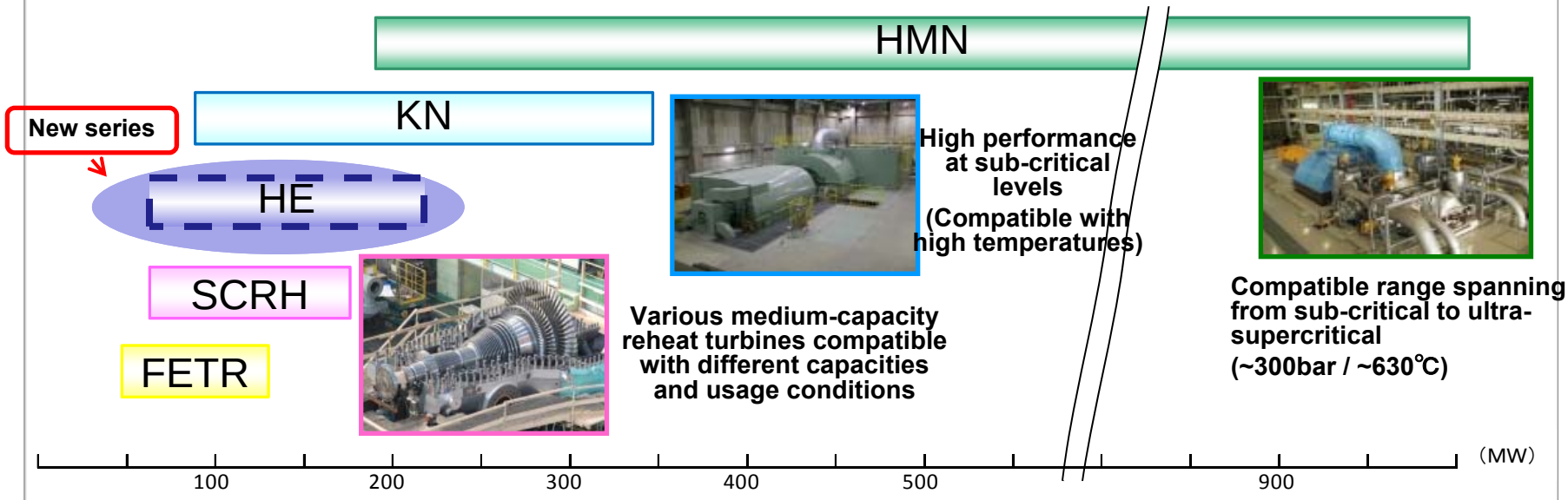
Thermal Power

- **Continually acquire orders for thermal power generation (IPP, PPS)**
  Acquire combined-cycle and ultra-supercritical coal-fired thermal power generation plant orders
- **Expand orders in Asia and the Near and Middle East through acquisition of new customers**

- **Promote development ventures for bolstering product lineup and increasing efficiency**
  Expand reheat turbine model series (HE)
  Achieve compatibility with high-temperature and high-pressure plants to realize increased cycle efficiency

＜Reheat Turbine Product Lineup＞



Geothermal Power

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Geothermal Power	・Continue acquiring orders in Asia, and expand orders in the African and Central and South American markets ・Expand domestic binary geothermal power generation orders

＜Binary Geothermal Power Generation＞

Robust product lineup

Covers wide range spanning from 100 kW hot spring power generation to installations with capacity of more than 10 MW

Artist rendition of completed plant

First order: Idemitsu Oita Geothermal Co., Ltd.
Takigami Binary Geothermal Power Plant

Capacity: 5050 kW (generator)

Heat source: Hot water reinjection (130 ℃)

Start of operation: 2017

Thermal and Geothermal Power
Expansion of After Sales Businesses

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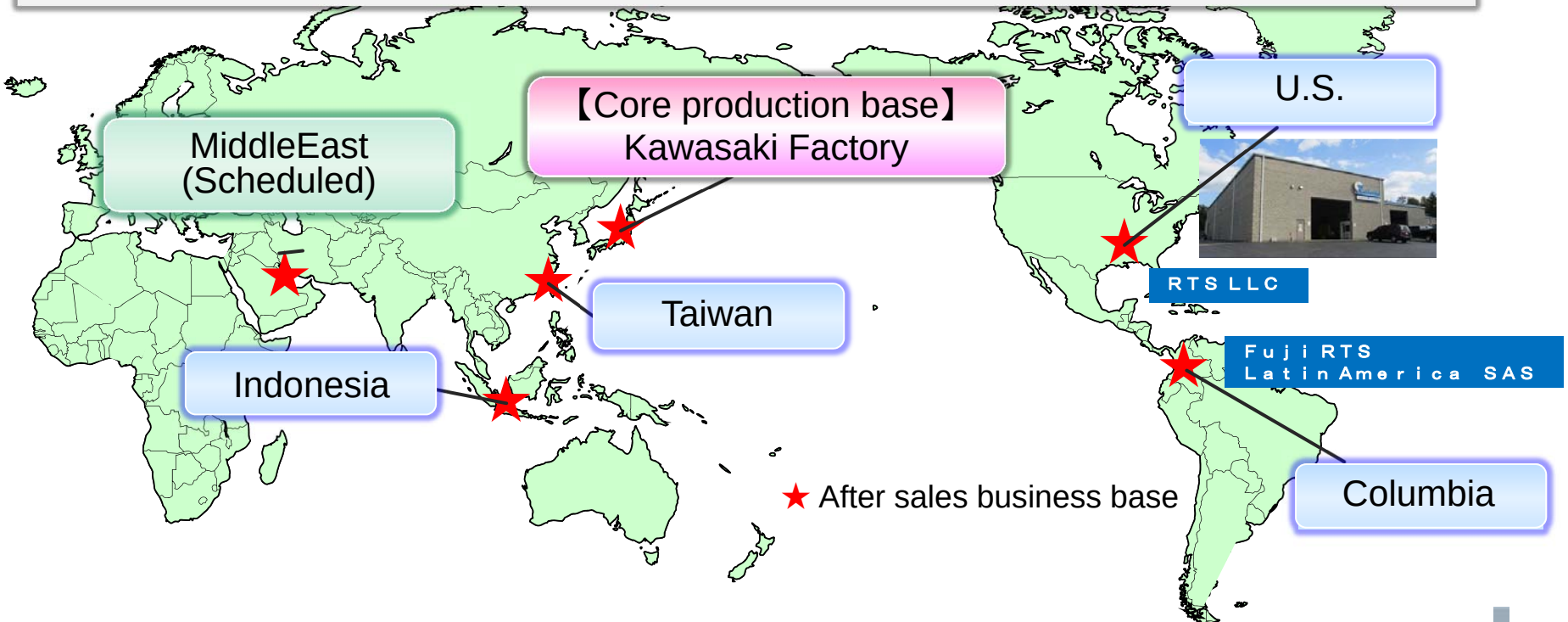
Thermal and geothermal power after sales businesses

- **Expand U.S. operations using after sales business bases of RTS**
- **Deploy RTS's after sales business model globally**
- **Strengthen responsiveness to maintenance needs**
  - Enhance lineup of services for optimizing plant lifecycles
  - Expand range of completely localized maintenance services (localized maintenance, construction)
  - Cultivate local technicians

Ratio of sales from after sales businesses (thermal and geothermal power)
FY2015: 30% → FY2018: 40%



Fuel Cells

Fuel Cells

■ Expand orders in Germany fire prevention market centered on warehouses and IDCs

- Spreading introduction of fire prevention equipment in Germany centered on warehouses and IDCs
- Fully utilize exclusive license for patent of fire prevention system using low-oxygen exhaust air and sales channels of Fuji N_2
- Strengthen competitiveness by leveraging Fuji Electric's technologies and expertise to commence local production, reduce costs, and shorten delivery times

■Bolster product lineup by introducing new models (SOFC)

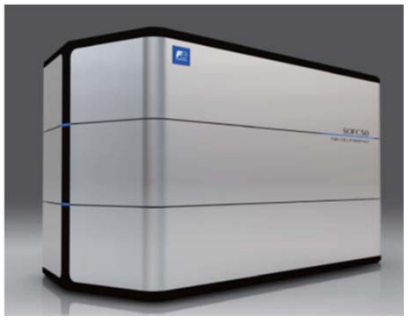
- Enter into market by commercializing high-efficiency, low-cost SOFCs for small- to medium-scale private-sector applications for which distributed power sources are applicable (hospitals, offices, commercial facilities, housing complexes, etc.)
- Target 2018 launch

Example of fuel cells delivered in Germany

Fuel cell (100 kW) for the fuel cell research center (ZBT)

(Installation completed in 2015)

50 kW class SOFC system



【Artist rendition】

・SOFC: Solid oxide fuel cell

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Social Engineering Systems

Social Engineering Systems　Priority Measures

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Step up smart meter initiatives

- Reinforce production systems and profit structure

Expand business against backdrop of electricity system reform

- Develop new businesses targeting PPSs (cloud services, electricity storage systems, etc.)

Smart Meter Market Trends

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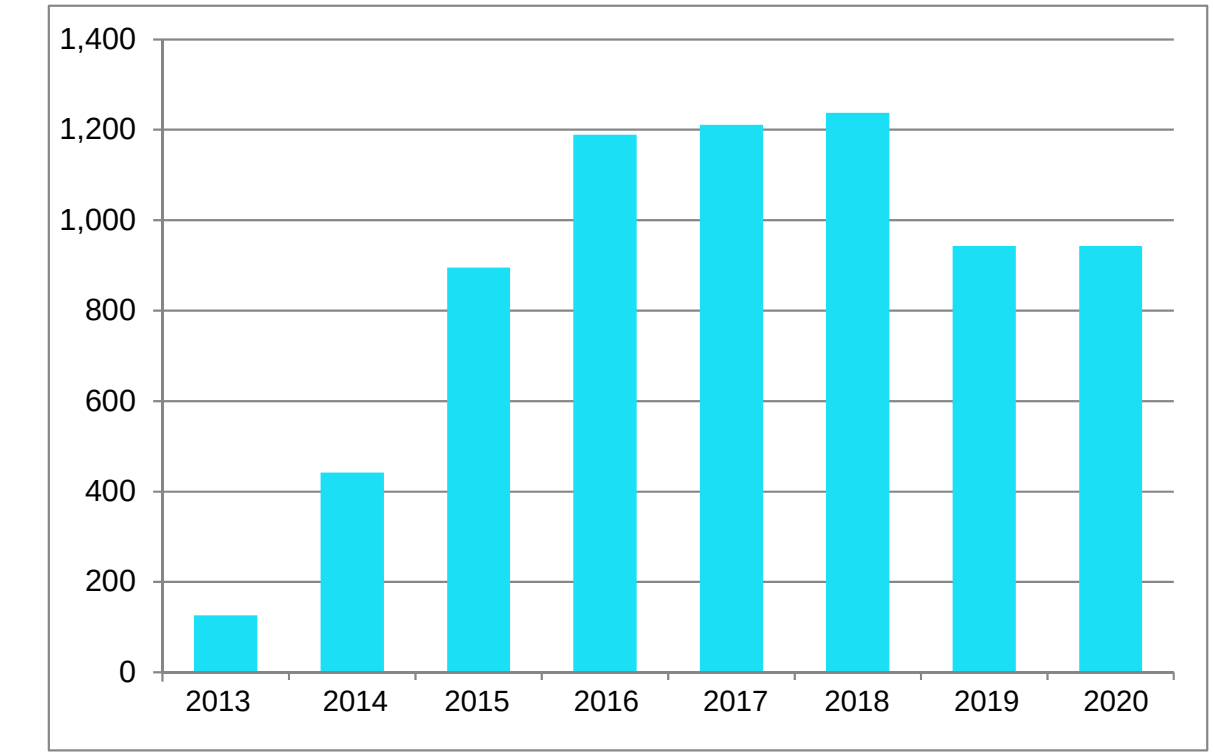
Smart Meter Market Forecast



(The Company's estimation)

- **Full-fledged, nationwide introduction commenced in 2015**
- **Demand to peak between 2016 and 2018 due to influences of early introduction by TEPCO (10 years → 7 years)**

Smart Meters

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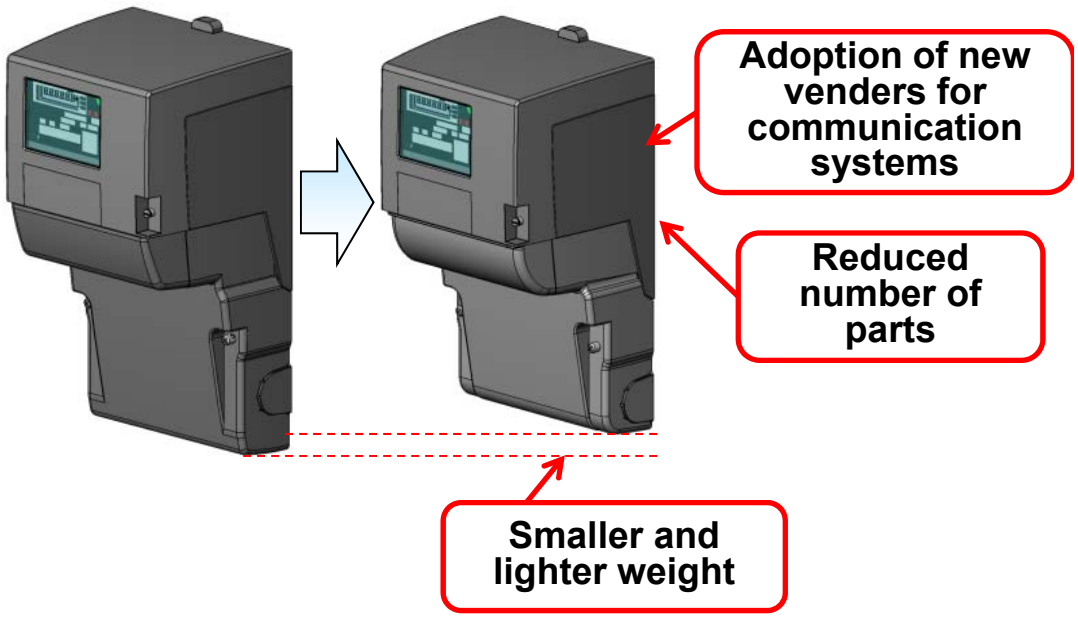
Smart meters	・Enhance production lines in conjunction with market scale growth and improve productivity through automation ・Increase profits by reducing costs

Automated smart meter assembly line

Timely launch of low-cost meters



Electricity System Reform and Electricity Storage Control System Trends

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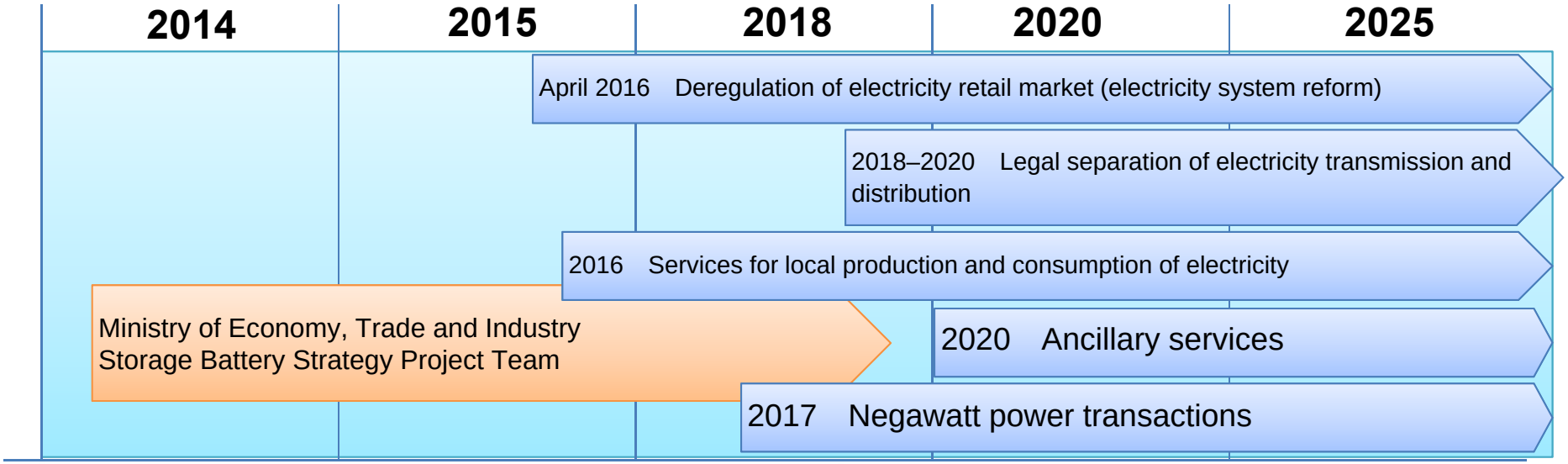
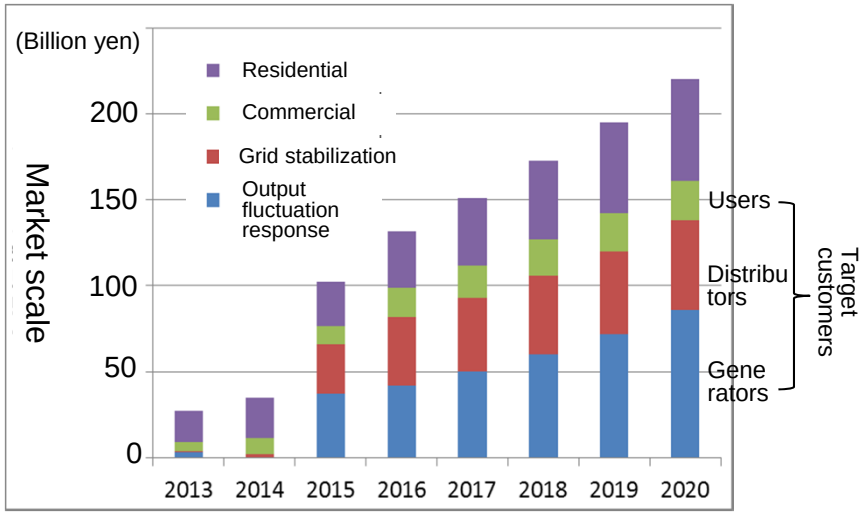


- **Establishment of retail market services in light of electricity system reform**
- **Expansion in range of service applicability in conjunction with rising demand for ancillary services, negawatt power transactions, etc.**
- **Rapid market growth projected starting in 2020 due to storage battery price reductions**

【Range of Electricity Storage Control System Application】
Residential: Blackout response measures, electricity fee reduction
Commercial: BCP measures, electricity fee reduction
Grid stabilization: Isolated islands, ancillary services
Output fluctuation response: Peak usage reduction and shifting for renewable energy, output fluctuation response measures

・Ancillary services: Electricity quality (frequency, voltage) maintenance

Electricity Storage Control System Market Scale



Source: Overview of and Outlook for Electricity Business Driven by Electricity System Reform, FUJI KEIZAI CO., LTD.

Development of New Businesses Targeting PPSs 1

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Electricity supply and demand management services

- **Provide cloud service systems that preemptively respond to market needs**
- **Expand orders through collaboration between NTT DATA, Kyowa Exeo, and Fuji Electric**

＜Overview of Cloud Services for PPSs＞

Customers (low-voltage~high-voltage~extra-high voltage)

Retail electricity suppliers

Supply and demand planning and management cloud services for PPSs combining strengths of 3 companies

NTT DATA — **Overall management**

EXEO — **Customer contract management, fee calculation, etc.**

Fuji Electric — **Supply and demand management, etc.**

Related organizations and institutions (Electricity distributors, Organization for Cross-regional Coordination of Transmission Operators, electricity exchanges)

Services Provided by Fuji Electric (Supply and Demand Management)

Power source development | **Supply and demand management** | **Retail**

Demand prediction | **Electricity procurement** | **Plan development** | **Demand data collection** | **Supply and demand monitoring**

Supply and demand management

Demand prediction	Procurement management
Supply-demand planning	Electrical energy management
Balance management	Market transaction support

Customer information Fee information | Demand data Climate information | Market transaction information

・・・etc.

Demand prediction screen image

Development of New Businesses Targeting PPSs 2

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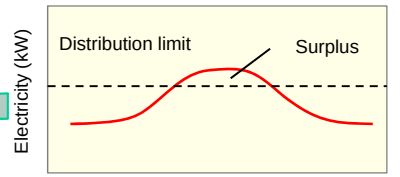
Energy storage control systems

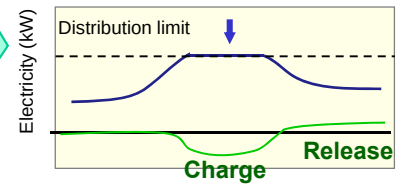
- Provide systems utilizing electricity stabilization technologies
- Increase orders by strengthening relationships with battery manufacturers
- Differentiate offerings by combining high-efficiency PCS with optimal control technologies

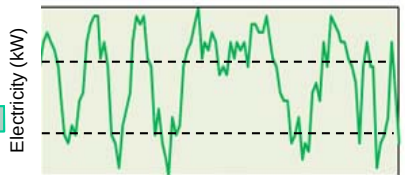
Energy storage control system

Target customers	Renewable energy generators (Renewable energy plants)	Electricity distributers	Users
Product characteristics	◆ Output fluctuation reparation ◆ Output limiting	◆ Frequency change reparation	◆ Peak shift ◆ BCP

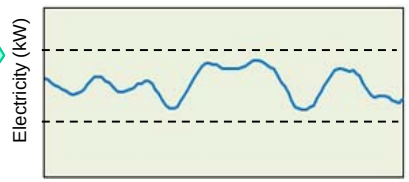


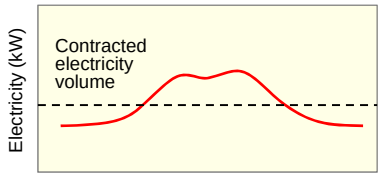
Output limiting by charging



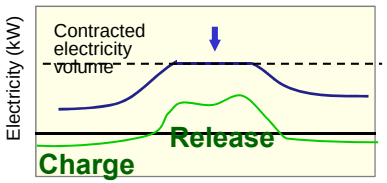


Reparations made for frequency changes to return within acceptable range





Peak shift utilizing stored electricity



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Social Information

Social Information Market Trends

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【Domestic IT market projections (2016–2018)】

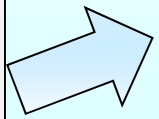
Gradual market growth anticipated

(Growth centered on software and services)

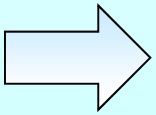
【Trends by customer type】

【Academic】 Elementary, junior high, high school: Strong demand due to government measures for ICT infrastructure enhancement

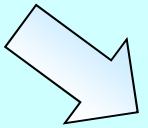
University: Increased usage of ICT in classes



【Private sector】 Trend toward limited conventional infrastructure investment in industrial and financial sectors



【Public】 Low levels of large-scale investment and government-spearheaded reduction in maintenance expenses



Social Information Priority Measures

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Accelerate and strengthen initiatives targeting new fields and growth fields amidst development of more-advanced IT infrastructure

- Academic: Expand business area by providing one-stop service, promote deployment of cloud services
- Private sector: Participate in new fields and acquire new customers by stepping up collaboration with Fujitsu
- Public: Increase orders by developing businesses for constructing sophisticated infrastructure

One-Stop Service Provision (Academic Field)

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Expand business area by effectively utilizing school assistants; enhancing integrated management of sales, SE, CE, and call centers; and bolstering service lineup through the deployment of cloud services

Schools and education boards

Staff room

School operation support systems

- Grade management
- Attendance management
- Teacher and student information management
- School event management

Cloud

Future School Promotion Project (Introduction of ICT in the classroom)

- Information terminals (1 per person)
- Wireless LAN
- Interactive whiteboard
- Digital textbooks
- Document cameras

Propose

Sales

ICT utilization support

Infrastructure development

Operation support

School assistants

Support

SE/CE

Call centers

Unique occupational category that entails assisting with classes and supporting teachers in utilizing IT (registered trademark number 554387 in Japan)

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Capital Investment / Research and Development

Capital Investment / Research and Development

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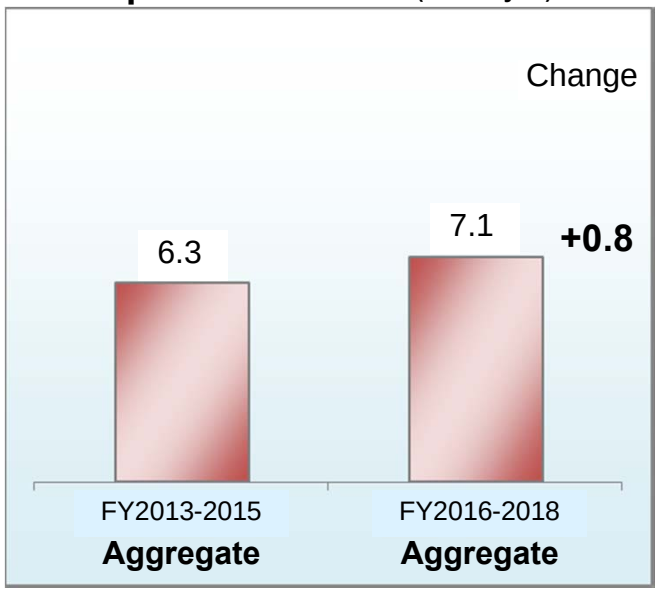
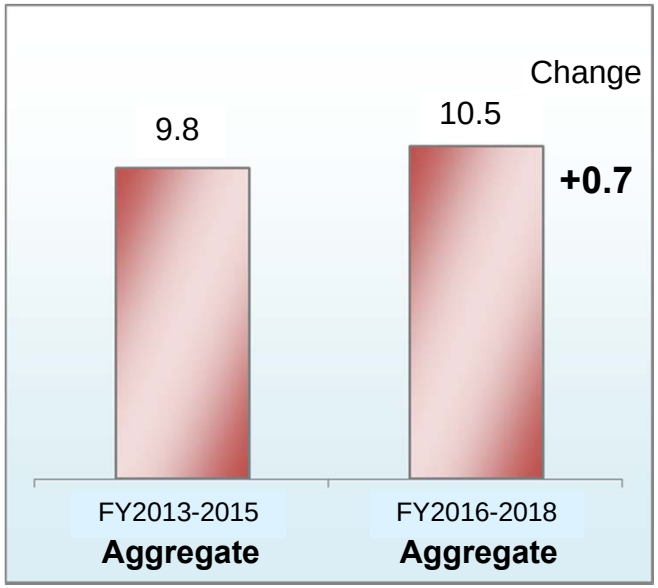
Focus on strengthening manufacturing capabilities and developing competitive, high-value-added products to continually and stably expand business

Capital Investment (Billion yen)



Research and Development (Billion yen)



- Rationalize production at Kawasaki Factory
- Enhance production facilities for smart meters

- Increase efficiency of thermal turbines
- Develop fuel cells (SOFCs)
- Expand range of services for addressing electricity system reform

* R&D expenditure figures above represent expenditures that have been allocated to segments based on theme and may therefore differ from figures contained in consolidated financial reports.

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