

# Review of Operations in Fiscal 2016

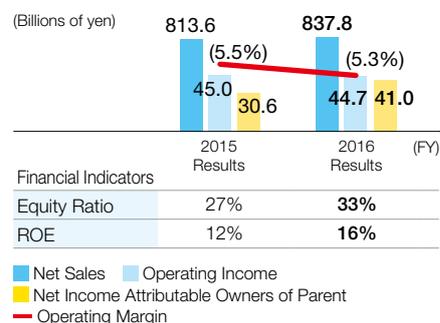
## Consolidated Performance in Fiscal 2016

Net sales increased ¥24.2 billion year on year, to ¥837.8 billion. Unfavorable foreign exchange rates placed downward pressure on sales, but the benefits of higher demand in the Power and Social Infrastructure and Industrial Infrastructure segments were most significant.

Operating income decreased ¥0.3 billion year on year, to ¥44.7 billion, as the impacts of upfront investments in Power Electronics and foreign exchange rate fluctuations outweighed the benefits of cost reduction efforts.

Net income attributable to owners of parent climbed ¥10.3 billion, reaching a new record high of ¥41.0 billion due to the recording of gain on sales of a portion of the Company's holding in FUJITSU LIMITED.

Substantial year-on-year improvements were seen in financial indicators with an equity ratio of 33% and return on equity of 16%.

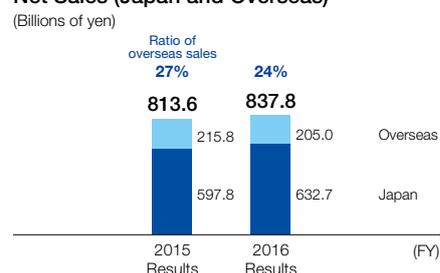


## Domestic and Overseas Net Sales

Domestic net sales increased ¥35.0 billion year on year, to ¥632.7 billion. This increase was a result of a rise in plant sales and higher smart meter demand in the Power and Social Infrastructure segment and robust replacement demand in the Industrial Infrastructure segment.

Overseas net sales decreased ¥10.8 billion, to ¥205.0 billion. Major factors resulting in this decrease included declines in the earnings of overseas subsidiaries when translated to yen amounts and lower plant sales in the Power and Social Infrastructure segment.

## Net Sales (Japan and Overseas)



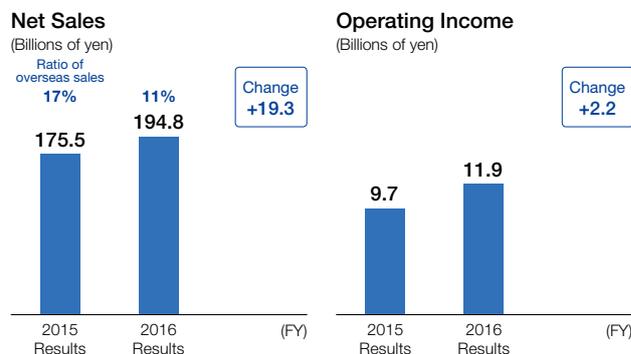
## Power and Social Infrastructure

Business Areas

- Thermal, geothermal, and hydro power generation facilities; solar power generation systems; fuel cells; nuclear power-related equipment
- Energy management systems, smart meters
- Information systems

Net sales increased following higher demand for replacing aging hydro power generation facilities and increasing the output of other existing hydro power facilities as well as a rise in demand for smart meters, which was a result of power companies switching over to such meters in conjunction with the deregulation of the electricity retail market. As another factor, sales of information systems for the public sector and the academic sector were up.

Operating income rose together with sales volumes of hydro power generation facilities and smart meters.



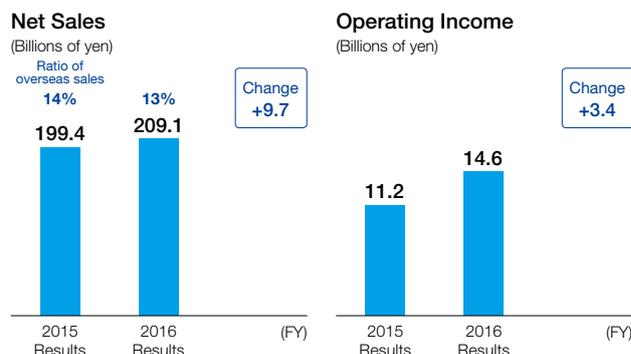
## Industrial Infrastructure

Business Areas

- Substation equipment, industrial power supply facilities
- Industrial drive systems, plant control systems, data centers, industrial energy management systems
- Measuring instruments and sensors, radiation monitoring systems, electrical and air-conditioning equipment construction

Net sales increased due in part to higher demand for substation equipment and industrial power supply facilities in Japan. Other contributors included strong energy saving and replacement demand among steel and chemical plants and other customers in the materials industry as well as increased sales in new solutions businesses targeting data centers.

Operating income rose due to the benefits of higher demand for substation equipment, industrial power supply facilities, and products for data centers as well as cost reductions.



## Capital Expenditure

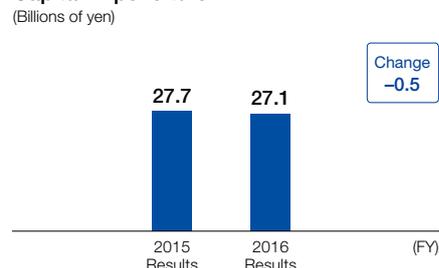
Investments were conducted in boosting production capacities based on the policy of local design, local production, and local consumption; commencing mass-production of next-generation power semiconductors in the Electronic Devices segment; and enhancing facilities at the global mother factory for the Power Electronics segment in Japan with a view to sales growth. In addition, we started construction of a new factory to expand vending machine production capacity in China.

## R&D Expenditure

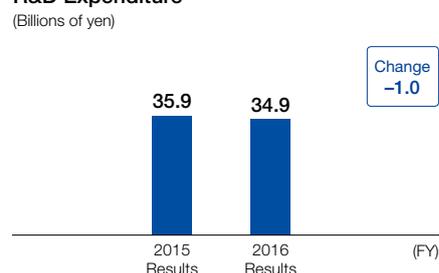
Fuji Electric advanced development of competitive components and solutions that create value for customers. We also developed equipment and platform technologies that utilize the Internet of Things (IoT).<sup>\*1</sup> In the Power Electronics segment, development ventures targeted the creation of new products for expanding plant systems operations. Meanwhile, the development of next-generation power semiconductors that contribute to the realization of more energy-efficient and compact equipment was pursued in the Electronic Devices segment.

<sup>\*1</sup> Internet of Things: Framework for fundamentally revolutionizing business and our daily lives by connecting various objects through networks and enabling them to achieve optimal, autonomous control of one another

### Capital Expenditure



### R&D Expenditure\*2



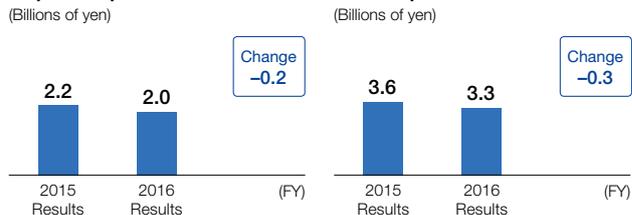
## Capital Investment

- Equipment for increasing production of smart meters
- Portable machining equipment for providing on-site repair services at thermal power plants

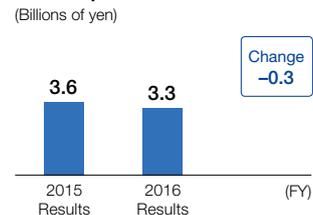
## Research and Development

- Improvement of efficiency and compatibility with high temperatures for thermal and geothermal power turbines, etc.

### Capital Expenditure



### R&D Expenditure\*2



#### TOPICS

### Supplied Binary Geothermal Power Generation System among Largest Generation Capacity in Japan

Aiming to contribute to the supply of electricity generated from renewable sources, Fuji Electric took part in a project for building a binary geothermal power generation system that uses lower-temperature hot water. The Company was contacted to perform engineering, procurement, manufacturing, and construction for this project. The system that was delivered boasts a generation capacity of 5,050 kW, among the largest in Japan.



Takigami Binary Geothermal Power Plant of Idemitsu Oita Geothermal Co., Ltd. (left) and turbine (right)

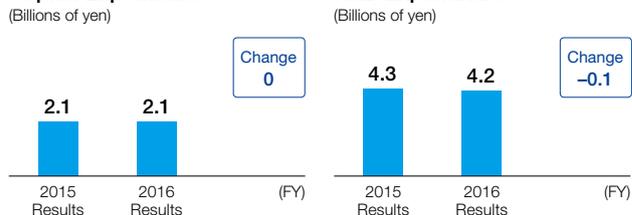
## Capital Investment

- Production equipment for substation equipment and measuring instruments

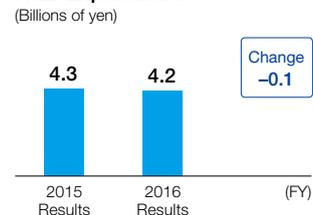
## Research and Development

- Gas-insulated switchgears for power plants and substations in Asia and the Near and Middle East
- Ultrahigh efficiency indirect external air conditioning equipment that contributes to data center energy savings  
56 kW F-COOL NEO (40% higher cooling capacity than previous offerings)

### Capital Expenditure



### R&D Expenditure\*2



#### TOPICS

### Delivered Large-Scale Data Center Project

Demand for data centers is rising rapidly amid the spread of cloud systems. Fuji Electric received an order for a large-scale data center project that entailed an EPC (Engineering, Procurement and Construction) base contract and delivered it.



Shirakawa Data Center of Yahoo Japan Corporation and IDC Frontier Inc.

<sup>\*2</sup> Figures for R&D expenditure above have been divided by segment based on theme and may therefore differ from the figures contained in the consolidated financial report for the fiscal year ended March 31, 2017.

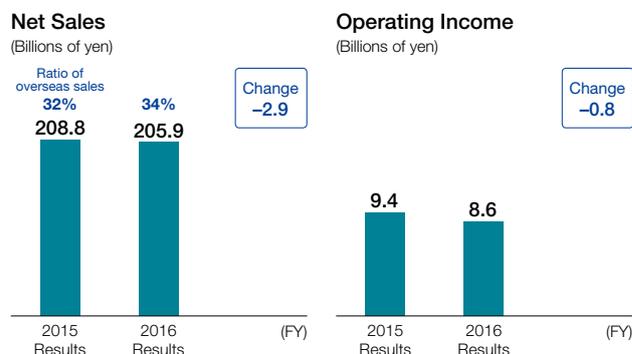
# Review of Operations in Fiscal 2016 (By Segment)

## Power Electronics

- Business Areas
- Inverters, servos, motors, railcar systems
  - Uninterruptible power systems, power conditioning systems, switchboards
  - Power distribution and control equipment

Although sales of servos and other products rose on the back of robust automation demand in China, overall net sales were down. Factors behind this decrease included a decline in large-scale overseas orders for electrical equipment for railcars, lower demand for power conditioning systems for megasolar power generation systems in Japan, and the impacts of unfavorable foreign exchange rates.

Operating income decreased due to lower sales, upfront investments in overseas production bases, and the aforementioned unfavorable foreign exchange rates.

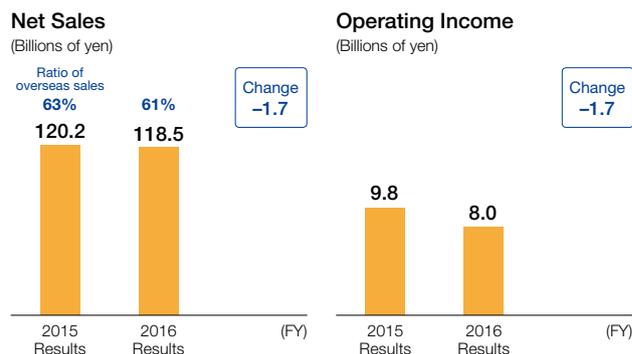


## Electronic Devices

- Business Areas
- Power semiconductors, photoconductors
  - Magnetic disks

Net sales were down, despite higher demand for power semiconductors in the industrial, automotive, and consumer fields, as a result of reduced demand for magnetic disks stemming from the deterioration of market conditions as well as unfavorable foreign exchange rates.

The lower magnetic disk sales and adverse foreign exchange rates also caused operating income to decline.

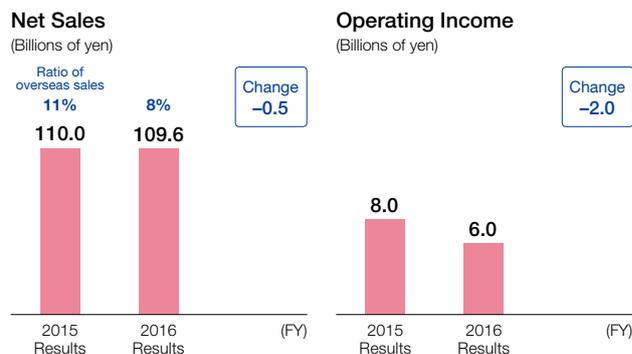


## Food and Beverage Distribution

- Business Areas
- Vending machines for beverage and food / goods
  - Store equipment, currency handling equipment

There was a rise in demand for store equipment for convenience stores, but net sales decreased as a result of lower vending machine shipment volumes stemming from reduced demand in Japan and the revision of market development plans in China.

Lower sales of vending machines in Japan and China coupled with a less favorable sales mix for store equipment led to a decline in operating income.



### Capital Investment

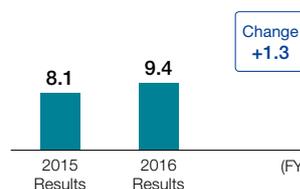
- Reorganization of products manufactured and rationalization of the in-house production systems at global mother factories in Japan (Suzuka Factory and Kobe Factory) to increase product competitiveness
- Construction of Power Electronics Technical Center (Suzuka Factory) that consolidates development and design functions

### Research and Development

- New ALPHA7 series servo systems for industrial machinery that contribute to control with industry-leading levels of speed and precision

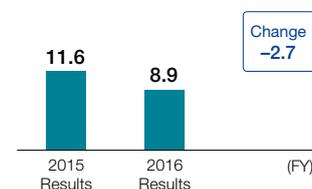
### Capital Expenditure

(Billions of yen)



### R&D Expenditure\*\*1

(Billions of yen)



#### TOPICS

### Launched New Product into Overseas Market

We introduced a new uninterruptible power system (UPS) for the North American data center market, where demand is anticipated to grow. This product is equipped with Fuji Electric's silicon carbide (SiC) power semiconductors, enabling it to realize power conversion efficiency at industry-leading levels.



UPS for the North American market

### Capital Investment

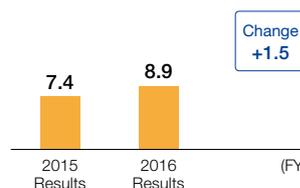
- Equipment for mass-production of 7th-generation IGBT chips at the Yamanashi Factory
- Equipment for increasing production at back-end process bases in Japan and overseas

### Research and Development

- Direct liquid-cooling power modules for electric and hybrid electric vehicles (50% more compact and 60% lighter than previous offerings)

### Capital Expenditure

(Billions of yen)



### R&D Expenditure\*\*1

(Billions of yen)



#### TOPICS

### Expansion of Power Semiconductor Series for Industrial and New Energy Fields

Fuji Electric expanded its series of 7th-generation IGBT module power semiconductors, which deliver increased energy savings and contribute to more compact equipment and subsequent space savings. Applications for these products include numerical control machinery and other production equipment as well as power converters for wind and solar power generation systems in the new energy field.



7th-generation IGBT module

### Capital Investment

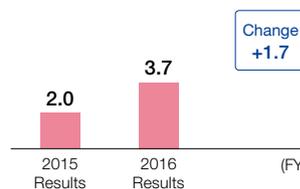
- Construction of second Dalian factory to expand vending machine business in China

### Research and Development

- Freezer showcases for stores (30% less electricity consumption than previous offerings), other showcases

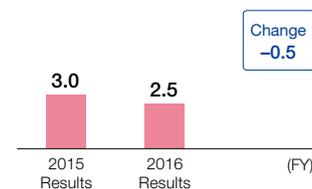
### Capital Expenditure

(Billions of yen)



### R&D Expenditure\*\*1

(Billions of yen)



#### TOPICS

### Contributions to Labor Savings at Stores

Labor shortfalls are stimulating increases in demand for labor savings and automation at convenience and other stores. Fuji Electric catered to this demand by expanding its lineup of vending machines that can sell goods 24 hours a day and by delivering automatic change dispensers for self-checkout registers.



Vending machine for foods and other goods (left) and automatic change dispensers (right)

\*1 Figures for R&D expenditure above have been divided by segment based on theme and may therefore differ from the figures contained in the consolidated financial report for the fiscal year ended March 31, 2017.

# Management Plan for Fiscal 2017

## Issues to be Addressed in Fiscal 2017

For fiscal 2017, Fuji Electric has set forth a policy of working to construct growth foundations through business model renovation, and we plan to advance initiatives to strengthen the power electronics systems business, further enhance manufacturing capabilities, and re-energize Pro-7 Activities.

### Strengthen the Power Electronics Systems Business

Fuji Electric aims to expand its overseas systems operations by creating competitive components. We are implementing the following initiatives through a cross-business structure encompassing development, engineering, production, and after-sales services to ensure that this policy can be implemented effectively. As part of our efforts on this front, we will create differentiated products through marketing practices based on actual market needs and move ahead with the standardization of systems and the development of systems packages for specific target industries. Fuji Electric will also optimize its global supply chain by stepping up coordination among production bases in Japan and overseas. In addition, we will consolidate after-sales service divisions and provide one-stop service based on the customer's perspective to improve customer satisfaction.

### New Business Segments

Effective April 1, 2017, the Company underwent a reorganization resulting in the current structure of four business groups comprising five segments.

As part of this move, the power electronics systems business was created through the reorganization of the prior Power and Social Infrastructure segment's social engineering systems business as well as the industrial infrastructure business and the power electronics business. In this new business, we provide two types of solutions. Energy solutions contribute to the consistent supply,

## Issues to be Addressed in Fiscal 2017

### Construct growth foundations through business model renovation

**Implement growth strategies**  
**Improve profitability**

- Strengthen the power electronics systems business
- Further enhance manufacturing capabilities
- Re-energize Pro-7 Activities

### Further Enhance Manufacturing Capabilities

Based on its policies of promoting local production and consumption, Fuji Electric plans to enhance its global mother factories in Japan and pursue coordination with overseas production bases to reinforce its systems for responding to diverse market needs in Japan and overseas.

Furthermore, we will expand in-house production to improve value and productivity while utilizing IoT to reduce costs.

### Re-energize Pro-7 Activities

Fuji Electric's Pro-7 Activities is a program that entails a ground-up review of all costs associated with business activities as well as efforts to radically improve operational quality in order to prevent waste and losses. In fiscal 2017, these activities will be re-energized through accelerated implementation at overseas bases by which we aim to enhance earnings systems.

optimization, and stabilization of energy for customers. Industry solutions contribute to improved productivity and energy savings with factory automation and monitoring. In this area, we seek to combine components and systems so that the resulting systems can be utilized to expand overseas operations.

In addition, the newly established Power and New Energy segment will be responsible for the supply of clean and eco-friendly power.

Previous Segments  
(~March 31, 2017)

New Business Segments  
(April 1, 2017~)

Business Segments	Business Segments	Subsegments	Value Provided
Power and Social Infrastructure	Power Electronics Systems	Energy Solutions <ul style="list-style-type: none"> <li>• Energy management</li> <li>• Substation systems</li> <li>• Power supply systems</li> <li>• ED&amp;C components</li> </ul>	Consistent supply, optimization, and stabilization of energy
Industrial Infrastructure		Industry Solutions <ul style="list-style-type: none"> <li>• Factory automation</li> <li>• Process automation</li> <li>• Environmental and social solutions</li> <li>• Installation</li> <li>• IT solutions</li> </ul>	Automation, productivity improvement, and energy savings
Power Electronics	Power and New Energy		Clean and eco-friendly power
Electronic Devices	Electronic Devices		Efficiency improvement and energy savings
Food and Beverage Distribution	Food and Beverage Distribution	<ul style="list-style-type: none"> <li>• Vending machines</li> <li>• Store distribution</li> </ul>	Food safety and security, labor savings

## Fiscal 2017 Targets

Net sales are projected to increase ¥12.2 billion year on year, to ¥850.0 billion, as the benefits of progress in growth strategies and higher domestic and overseas demand will outweigh the negative impacts of foreign exchange influences.

In addition, we will target a record high for operating income of ¥48.0 billion, an increase of ¥3.3 billion year on year. This accomplishment is to be achieved through higher sales as well as through cost reductions stemming from enhancements to manufacturing capabilities.

Net income attributable to owners of parent is forecast to decline ¥12.0 billion year on year due to the absence of the gain on sales of investment securities recorded in fiscal 2016.

Meanwhile, we are anticipating an equity ratio of 35% and return on equity of 10%.

## Domestic and Overseas Net Sales

Domestic net sales of ¥637.0 billion, an increase of ¥4.3 billion year on year, are projected to be achieved through higher sales from plant projects in the Industry Solutions and Power and New Energy segments.

Although foreign exchange rates will place downward pressure on earnings of overseas subsidiaries when translated to yen, overseas net sales are forecast to increase ¥8.0 billion, to ¥213.0 billion. This increase will be a product of a rise in sales of sub-station systems in the Energy Solutions segment and of vending machines in the Food and Beverage Distribution segment.

## Capital Expenditures

The policy of local design, local production, and local consumption pursued in fiscal 2016 will be maintained in fiscal 2017. Investment targets will include production equipment compatible with SiC power semiconductors and other new product developments in the Electronic Devices segment and production equipment for boosting vending machine production capacity in China in the Food and Beverage Distribution segment.

Furthermore, investments will be conducted to facilitate Companywide efforts to utilize IoT for automating production equipment and tracking production data in order to improve product competitiveness.

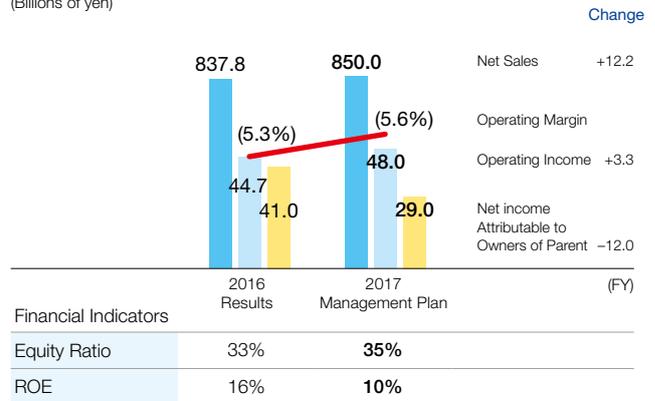
## R&D Expenditures

R&D ventures for creating competitive, value-added products will be accelerated.

Specifically, we will focus on the development of differentiated equipment and platform technologies to give rise to solutions that create value for customers by utilizing new power electronics systems products and IoT.

In the Electronic Devices segment, which accounts for approximately 40% of R&D expenditures, our focus will be the power semiconductors that are the source of Fuji Electric's competitive edge.

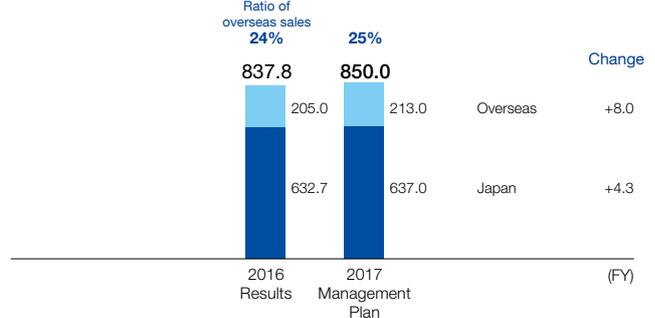
(Billions of yen)



Projected Foreign Exchange Rates in Fiscal 2017  
 US\$1 = ¥105, €1 = ¥115, RMB 1 = ¥15.7

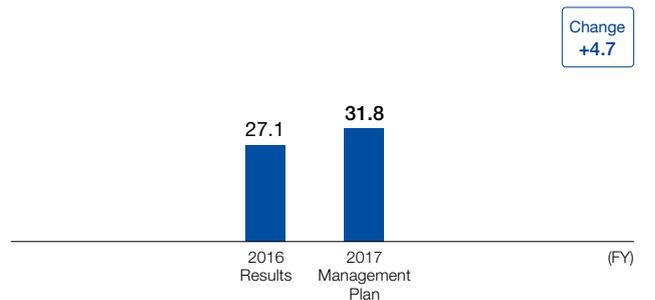
## Net Sales (Japan and Overseas)

(Billions of yen)



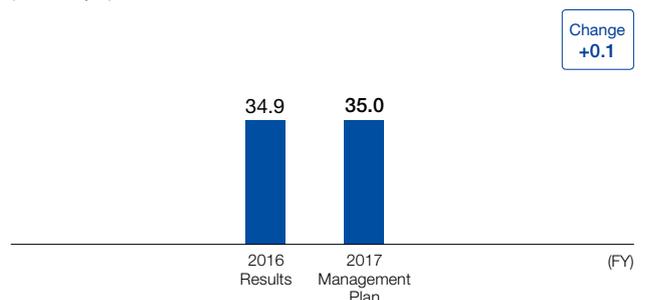
## Capital Expenditures

(Billions of yen)



## R&D Expenditures

(Billions of yen)



# Management Plan for Fiscal 2017 (By Segment)

## Power Electronics Systems—Energy Solutions and Industry Solutions

Fuji Electric provides energy solutions, which contribute to the consistent supply, optimization, and stabilization of energy, as well as industry solutions, which contribute to improved productivity and energy savings via factory automation and monitoring.

### Business Areas

#### Energy Solutions

- **Energy management**  
Factory energy management systems, power distribution, smart meters
- **Transmission and distribution**  
Substation equipment, industrial power supply facilities
- **Power supplies**  
Datacenters, uninterruptible power systems, power conditioning systems, switchboards
- **ED&C components**  
Power distribution and control equipment



Substation equipment



Data center

#### Industry Solutions

- **Factory automation**  
Inverters, motors, factory automation components and systems
- **Process automation**  
Drive control systems, measurement and control systems
- **Environmental and social systems**  
Distribution systems, plant factories, measuring instruments and sensors, radiation monitoring systems, transportation systems
- **Equipment construction**  
Electrical and air-conditioning equipment installation
- **IT solutions**  
Information systems



Servo system



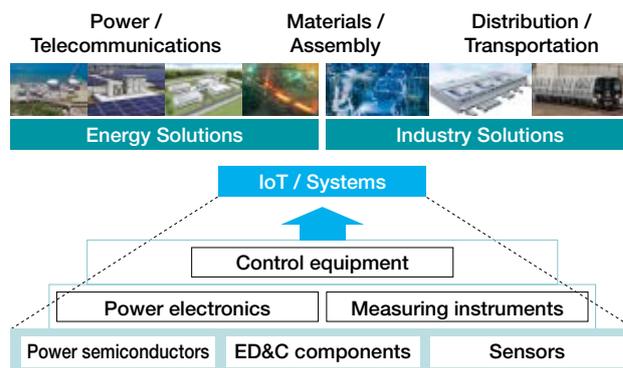
Plant monitoring and control system

### Power Electronics Systems Business Policies

- **Create competitive components**
- **Enhance systems using competitive components**
- **Expand overseas businesses by leveraging systems**

With a focus on power semiconductors and sensors, Fuji Electric will create competitive components, including power electronics, measuring instruments, and control equipment. These components will be utilized to form high-value-added systems, which we will bundle with engineering and after-sales services and provide to customers to resolve the issues they face.

In addition, we will reinforce our engineering systems centered on overseas subsidiaries acquired through M&A activities to expand systems operations in Asia, North America, and other regions.



### Business Linked Through Cross-Business Structure

We are implementing business policies through a new cross-business structure for development, engineering, production, and after-sales services.

#### Development

Fuji Electric will create differentiated products through marketing practices based on actual market needs. To this end, development will be accelerated for power electronics equipped with SiC power semiconductors as well as for systems that combine sensors, control equipment, and IoT technologies. We will also standardize designs and expand use of shared parts to shorten development lead times and reduce costs.

#### Production

Fuji Electric will optimize its global supply chain by stepping up coordination between global mother factories in Japan and overseas production bases. In addition, productivity improvements and cost reductions will be pursued through business-wide system quality management, expanded in-house production and standardization, and automation.

#### Engineering

Fuji Electric will provide visualization of plant system costs. At the same time, we will bolster system proposal capabilities through reductions in costs and lead times achieved by standardizing systems and developing systems packages for specific target industries with a focus on differentiated products.

#### After-Sales Services

Fuji Electric will seek to increase customer satisfaction by consolidating after-sales service divisions to provide one-stop service based on the customer's perspective. We will also enhance facility maintenance proposals in Japan and reinforce overseas after-sales business foundations as we strive to grow our service sales on a global basis.

## Energy Solutions

### Priority Measures for Fiscal 2017

#### Strengthen the Transmission and Distribution Business

Fuji Electric will devote efforts to incorporating domestic replacement demand for substation equipment while enhancing manufacturing and engineering capabilities in Asia.

#### Reinforce the Data Center Business

Fuji Electric aims to reinforce its data center business, which is expected to see demand growth in Asia and North America. To support this business, we will develop system packages bundling uninterruptible power systems (UPSs) with indirect external air-conditioning and other equipment. We will also promote sales of UPSs equipped with SiC power semiconductors as differentiated products in the domestic and overseas markets.

#### Capture Domestic Construction Demand in ED&C Components Business

Out of consideration for the strong domestic construction demand, Fuji Electric will seek to increase sales of ED&C components by redoubling efforts to take advantage of demand from distribution panel manufacturers as well as from machine tool and other machinery manufacturers.

#### Net Sales

(Billions of yen)



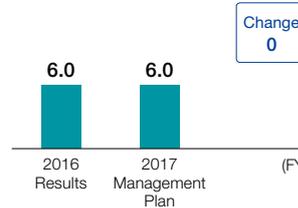
#### Operating Income

(Billions of yen)



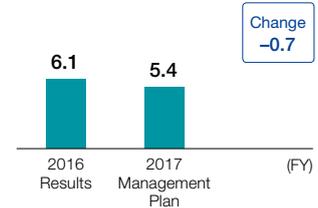
#### Capital Expenditures

(Billions of yen)



#### R&D Expenditures\*

(Billions of yen)



#### Capital Investment

- Production facilities for smart meters and ED&C components, etc.

#### Research and Development

- Development of low-cost smart meters and electricity storage systems, expansion of series of SiC-equipped UPSs, etc.

## Industry Solutions

### Priority Measures for Fiscal 2017

#### Expand the Factory Automation Systems Business

Looking to capture factory automation demand centered on assembly processing plants in China and Japan, Fuji Electric will expand its factory automation systems business through combinations of servo systems, programmable logic controllers, and other equipment.

#### Strengthen the Process Automation Business

Our process automation business targets steel and chemical plants as well as other customers in the materials industry. In this business, Fuji Electric will boost productivity in domestic manufacturing industries and take advantage of replacement demand for energy-saving equipment, among others. At the same time, the Company will strengthen its overseas operations by leveraging engineering companies in Vietnam and India.

#### Increase Distribution Field Sales

Fuji Electric will seek to expand sales in the distribution field, which is growing in Japan, by deploying systems solutions that incorporate IT facility monitoring and other functions into distribution control and cold chain systems.

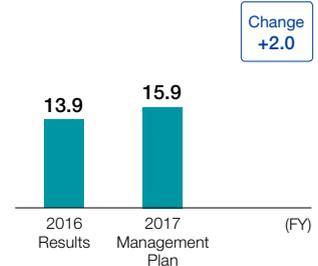
#### Net Sales

(Billions of yen)



#### Operating Income

(Billions of yen)



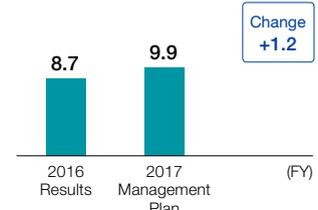
#### Capital Expenditures

(Billions of yen)



#### R&D Expenditures\*

(Billions of yen)



#### Capital Investment

- Rationalization of facilities at power electronics systems factories and introduction of production equipment for new products, etc.

#### Research and Development

- SiC applied power electronics equipment, factory automation systems, motion and servo equipment, field equipment and systems compatible with IoT, etc.

\* Figures for R&D expenditures above have been divided by segment based on theme and may therefore differ from the figures contained in the consolidated financial report for the fiscal year ended March 31, 2017.

# Management Plan for Fiscal 2017 (By Segment)

## Power and New Energy

Fuji Electric's sophisticated plant engineering capabilities meet the growing demand for electricity by providing high-efficiency thermal power generation plants as well as eco-friendly geothermal, hydro, solar, and wind power generation equipment and fuel cells.

### Business Areas

<p><b>Thermal Power</b></p> 	<p><b>Renewable and New Energy</b></p>      <p>Geothermal power generation plants   Hydro power generation facilities   Solar power generation systems   Wind power generation systems   Fuel cells</p>	<p><b>Nuclear Power-Related Equipment</b> (Fuel handling equipment and waste treatment equipment)</p> 
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### Priority Measures for Fiscal 2017

Fuji Electric will target consistent, ongoing business growth by catering to rising demand for renewable energy and other forms of power and by expanding after-sales businesses.

#### Expand Orders for Thermal Power Generation Plants

In the midst of the progressive deregulation of the electricity retail market in Japan, Fuji Electric will work to continue receiving thermal power-related orders from power producers while approaching new customers. At the same time, we will expand orders in Asia and the Near and Middle East.

Thorough management of project progress will also be practiced while reducing costs.

#### Grow Renewable Energy Orders

The Company will strive to continue receiving geothermal power-related orders in Asia while growing orders in the African and Central and South American markets. In Japan, sales promotions for binary geothermal power generation systems will be advanced while leveraging our past delivery track record.

In the solar power field, we will target an ongoing flow of orders for large-scale engineering, procurement, and construction projects in Japan while simultaneously entering into the Asian market.

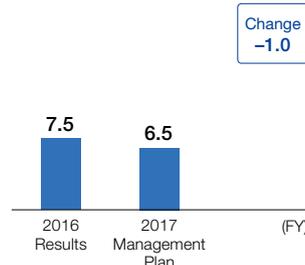
#### Secure Stable Earnings by Expanding After-Sales Businesses

Fuji Electric will establish new bases in the Middle East and develop a global network linking Japan, Taiwan, the Americas, and Indonesia with the aim of expanding its thermal and geothermal power after-sales businesses. At the same time, increased sales will be targeted at RTS Holdings, Inc., a U.S. company that was acquired and subsequently converted into a subsidiary in fiscal 2015, while also deploying this company's expertise at other overseas after-sales service bases. We thereby aim to increase the service provision capabilities of these bases.

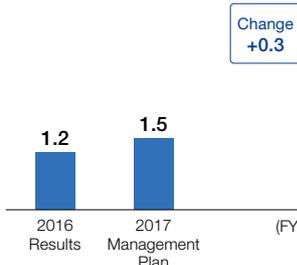
#### Net Sales (Billions of yen)



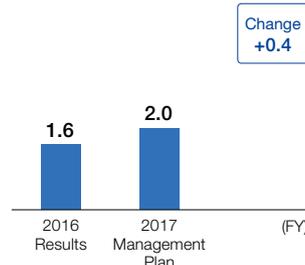
#### Operating Income (Billions of yen)



#### Capital Expenditures (Billions of yen)



#### R&D Expenditures\* (Billions of yen)



\* Figures for R&D expenditures above have been divided by segment based on theme and may therefore differ from the figures contained in the consolidated financial report for the fiscal year ended March 31, 2017.

#### Capital Investment

- Rationalization of production facilities at the Kawasaki Factory, enhancement of equipment at RTS, etc.

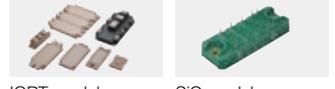
#### Research and Development

- Improvement of thermal power turbine efficiency, development of new power conditioning sub-system models for solar power generation systems, development of next-generation fuel cells, etc.

# Electronic Devices

Across the industrial, automotive, and consumer fields, Fuji Electric contributes to high power conversion efficiency and energy savings by supplying power semiconductors, which are key devices in power electronics.

## Business Areas

	Industrial Field	Automotive Field	Consumer Field and Others
Application	 <p>Inverters    Numerical control machinery    Power conditioning sub-systems</p>	 <p>Automobiles</p>	 <p>Servers    Flat-screen TVs</p>
Products	 <p>IGBT modules    SiC modules</p>	 <p>Automotive IGBTs    Pressure sensors</p>	 <p>Power control ICs    Power MOSFETs</p>

## Priority Measures for Fiscal 2017

In its power semiconductor business, Fuji Electric will accelerate the development of high-value-added products in the industrial and automotive fields to create a highly profitable operating structure and grow sales. We will also seek increased productivity by investing in equipment for manufacturing new products and bolstering 8-inch wafer production capacity.

Our focus in the magnetic disk business will be to secure stable sales volumes and maintain profitability.

### Increase Sales of Power Semiconductors for the Industrial Field

A major focus will be promoting sales of 7th-generation IGBT modules that realize greater energy savings while enabling equipment to be made more compact and light requirements. Specific applications targeted with these modules will be numerical control machinery and robots, which are performing well amid the trend toward factory automation and adoption of IoT technologies, and air-conditioning equipment, which is witnessing growing demand centered on China.

### Step Up Power Semiconductor Product Development

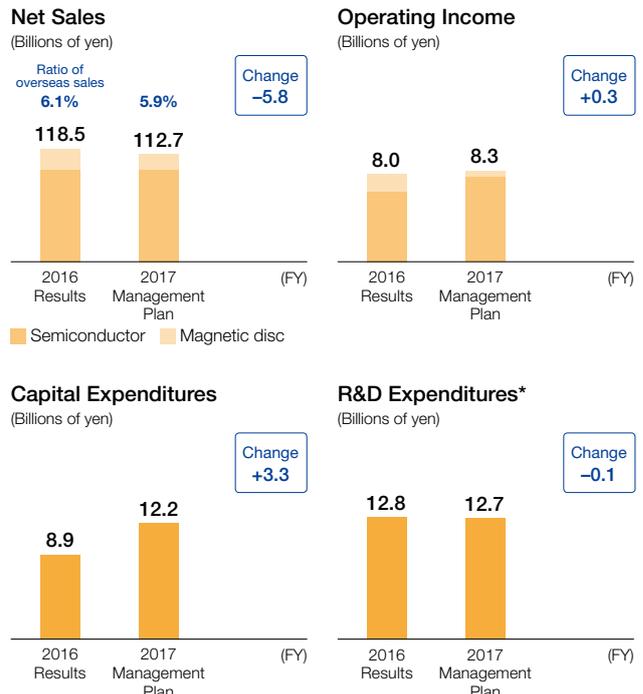
Currently, there is demand for the components used in electric vehicles to be made lighter and more compact in order to increase driving performance and reduce environmental impacts. Fuji Electric will respond to this trend by utilizing its cutting-edge chip, package, and cooling technologies to develop IGBT modules boasting the industry's top levels of output electric power density. Through these efforts, we aim to realize future sales growth.

Furthermore, we will expand our series of SiC products, which contribute to higher levels of power conversion efficiency and more compact equipment, for a wide range of fields, including the industrial equipment, railway, and automotive fields. Development ventures for enhancing performance will also be accelerated.

### Bolster 8-Inch Power Semiconductor Wafer Production Capacity

We will bolster the 8-inch wafer production capacities of the Matsumoto Factory and the Yamanashi Factory while shifting

toward large-diameter wafer fabrication in front-end processes to increase productivity.



### Capital Investment

- Production equipment for 7th-generation IGBT modules and SiC products, 8-inch wafer production capacity increases, expansion of automotive module production equipment, doubling of air conditioner intelligent power module production capacity, etc.

### Research and Development

- SiC devices and modules, 7th-generation IGBT module product development, automotive devices and modules, etc.

# Management Plan for Fiscal 2017 (By Segment)

## Food and Beverage Distribution

In the food and beverage distribution field, Fuji Electric helps to ensure the safety and security of food and beverage products by combining its core heating and cooling technologies with mechatronic and IoT technologies to provide ideal products and solutions.

### Business Areas

#### Vending Machines



Can and PET bottle vending machines

Vending machines for food and other goods (models for China and other Asian markets)

#### Store Distribution



Showcases

Automatic change dispensers

Eco-friendly stores

### Priority Measures for Fiscal 2017

In the vending machine business, we will maintain our leading share in the domestic market while expanding operations in the growing Chinese and Southeast Asian markets.

Meanwhile, we will step up the development and proposal of new products that provide energy-saving and labor-saving benefits to convenience stores and that address operating environment changes in the store distribution business.

#### Maintain Top Share of Domestic Vending Machine Market

We aim to maintain the current level of domestic sales in the vending machine business, despite the contraction of the Japanese market. To accomplish this goal, we will respond to customer needs by developing new vending machine models that can be operated with increased efficiency. These vending machines will, for example, use IoT technologies to realize labor savings, formulate sales projections, or offer remote malfunction monitoring functions.

We will seek to maintain consistent levels of production to increase productivity as we also reduce costs and regionalize operating structures.

#### Enhance Vending Machine Business Structures in China and Southeast Asia

Vending machine demand in China and Southeast Asia is expected to grow together with automation and cashless payment needs. We are thus working to enhance our business structures in these areas. For example, the completion of the second vending machine factory in Dalian, China will enable us to produce 100,000 units a year in this country. Development, sales, and after-sales services systems in China will also be strengthened. In Southeast Asia, we are making efforts to meet the needs for replacing second-hand vending machines with brand new ones mainly in Thailand and to expand our lineup of models. In addition, we are actively managing operator companies, which use vending machines as a venue to sell the items contained therein. The Company is thereby working to create new markets.

#### Contribute to Development of Appealing Stores

Fuji Electric is bolstering its efforts to develop and propose new vending machine models that address the labor-saving needs of the domestic convenience store market as well as the changing customer demographics and tastes seen therein.

#### Net Sales

(Billions of yen)



#### Operating Income

(Billions of yen)



#### Capital Expenditures

(Billions of yen)



#### R&D Expenditures\*

(Billions of yen)



\* Figures for R&D expenditures above have been divided by segment based on theme and may therefore differ from the figures contained in the consolidated financial report for the fiscal year ended March 31, 2017.

#### Capital Investments

- Construction of second Dalian factory, expansion of in-house store equipment production, etc.

#### Research and Development

- Development of fundamental technologies that contribute to labor savings and new models of vending machines for the Chinese and Asian markets, etc.

# Management Plan for Fiscal 2017 (Overseas Operations)

## Overseas Operations

Fuji Electric is applying its policy of local design, local production, and local consumption to building overseas operation foundations. As part of this undertaking, we are developing sales, engineering, and production bases in China, other parts of Asia, the Americas, and Europe. As of March 31, 2017, we had 51 overseas sales and engineering bases and 19 overseas production bases located around the world. We are also focused on acquiring human resources and sales channels overseas. The Company conducted eight M&A transactions over the period from April 1, 2013, to March 31, 2016, and Fuji Electric currently has 45 consolidated subsidiaries outside of Japan.

Going forward, we will continue to enhance our manufacturing and engineering systems in growing markets, such as India and other parts of Asia.

### Asia

- Strengthen and expand systems businesses that target factories and plants and utilize acquired bases in Vietnam and India (Energy Solutions, Industry Solutions)
- Grow market by expanding lineup of new vending machine products and managing operator companies in Thailand (Food and Beverage Distribution)

**Net Sales in Asia (Excluding China)**  
(Billions of yen)



### China

- Expand operations targeting data centers (Energy Solutions)
- Strengthen factory automation systems business in conjunction with growing factory automation investment (Industry Solutions)
- Increase vending machine production capacity and enhance sales and after-sales service bases (Food and Beverage Distribution)

**Net Sales in China**  
(Billions of yen)



### Expansion of Overseas Network (March 31, 2013 → March 31, 2017)

- Consolidated subsidiaries: 22 → 45
- Sales and engineering bases: 47 → 51
- Production bases: 14 → 19

### Europe

- Bolster sales through promoting coordinated inverters and servos operations (Industry Solutions)
- Promote fuel cells sales through collaboration with German fire prevention equipment manufacturers (Power and New Energy)

**Net Sales in Europe**  
(Billions of yen)



### Americas

- Expand thermal and geothermal power after-sales businesses (Power and New Energy)
- Promote sales of UPSs for data centers (Energy Solutions)
- Grow railcar business (Industry Solutions)

**Net Sales in the Americas**  
(Billions of yen)



# Research and Development / Intellectual Property

## Research and Development

Fuji Electric is focused on research and development activities for creating competitive components and systems centered on power semiconductor technologies and power electronics technologies as well as activities for developing solutions that produce value for customers by combining fundamental technologies.

The Company has designed its R&D system to accelerate R&D activities by delegating product development functions to the respective business groups while the corporate R&D group handles technology marketing, advanced research, and basic research.

### R&D Policies

- Create competitive components and systems utilizing cutting-edge technologies
- Develop competitive product technologies utilizing technology marketing
- Realize new innovation by combining Fuji Electric's fundamental technologies with open innovations



### Initiatives in Fiscal 2016

#### Creation of Competitive Components and Systems

##### ■ Motion Control System

Fuji Electric has succeeded in developing a new motion controller and servo system that enables faster and more accurate positioning of precision processing and other equipment. The motion control system comprised of these two new products realizes fast and precise device control and features safety functions for guaranteeing safer operation.



New motion controller, SPH3000D

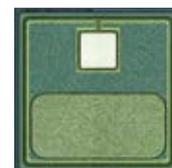


New servo system, ALPHA7

##### ■ Trench Gate SiC-MOSFET

Fuji Electric was involved in the development of a trench gate SiC-MOSFET.\*1 This device boasts a resistance level that is among the lowest in the world (1200 V, 3.5 mΩ cm<sup>2</sup>), meaning that it can contribute to loss reductions of more than 70% in comparison to Fuji Electric's Si devices when incorporated into an inverter. We intend to utilize this device in all SiC modules going forward.

\*1 Created through joint research with Tsukuba Power-Electronics Constellations, which was established by the National Institute of Advanced Industrial Science and Technology



Trench gate SiC-MOSFET

#### Development of Product Technologies Utilizing Technology Marketing

##### ■ Diagnosis Functions for Steel Rolling Facilities

Customers can incur losses if the operation of facilities is halted. Fuji Electric is currently developing abnormality diagnosis functions for steel rolling facilities with the aim of helping minimize these losses. Installing these diagnosis functions into facilities' drive control equipment will allow for facility data to be collected and diagnosed so that facility abnormalities can be predicted before they occur. In the future, we will look to install such diagnosis functions into cloud-based systems\*2 in order to deliver this service to as many customers as possible.



Steel rolling facilities

Note: The facilities in the photograph above are not equipped with Fuji Electric's diagnosis functions.

\*2 Server systems that collect data via networks and analyze this data

##### ■ Digital Signage Vending Machines

Together with JR East Water Business Co., Ltd., Fuji Electric developed a digital signage vending machine to provide new and valuable experiences through vending machines. Equipped with the Company's payment interface,\*3 this vending machine makes purchasing drinks more convenient by making pre-payment or regular purchases possible via a smartphone application.

\*3 Program that links digital signage applications to vending machine software



New digital signage vending machine

## Realization of New Innovation

Fuji Electric is advancing joint research with Japanese universities and research institutions based on comprehensive partnership agreements. In addition, we have endowed laboratories at the

University of Tsukuba and the University of Yamanashi and are advancing efforts in research and the development of human resources in the fields of power devices and power electronics.

## Future Initiatives

Focuses of Fuji Electric's R&D activities going forward will include SiC power semiconductors, automotive power semiconductors, SiC-equipped power electronics products, and other components with unrivaled levels of competitiveness. We also develop factory automation and process automation systems and IoT solutions that are synergetic with these components while fostering human resources through the process of tackling new challenges.

## Intellectual Property

Positioning intellectual property (IP) rights as one of the most important management resources, Fuji Electric is working to implement IP strategies that are aligned with its business and R&D strategies to contribute to the strengthening and expansion of its globalization-compatible business.

### IP Policies

- Strengthen IP activities that extend back into the stages of business planning and R&D
- Investigate and respond to overseas IP systems and their current statuses and reinforce IP activities at overseas bases
- Promote international standardization activities

### Initiatives in Fiscal 2016

#### IP Activities in the Initial Stages of Business

We endeavored to formulate IP strategies from the business and R&D theme planning stage. After confirming business and R&D directives, these strategies were drafted based on patent analysis and surveys. We also took steps to develop patent portfolios that ensure a strong advantage in business activities.

#### Main Fields for Patent Applications

- Patents relating to increasing the efficiency and energy savings of power electronics products
- Patents pertaining to power semiconductors, such as those for SiC-related technologies
- Patents relating to vending machines and other areas of the food and beverage distribution field

#### Global IP Activities

Fuji Electric continues to investigate overseas IP systems and implement measures against counterfeit products to minimize business risks related to IP.

In fiscal 2016, our local IP division in China led efforts to enhance patent survey and application functions and to implement countermeasures against counterfeit products. In addition, more stringent measures were implemented for reducing IP risks in conjunction with the growth of the vending machine business.

As part of its contributions to international standardization movements, with the aim of ramping up acquisition of certification under the standards of the International Electrotechnical Commission (IEC), Fuji Electric registered the Fukiage Factory as a factory certified by the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE). As a result, it is now possible to conduct certification tests at this factory.



IP risk seminar in China

# Manufacturing / Procurement

## Manufacturing

Based on its policies of promoting local design, local production, and local consumption, Fuji Electric employs a framework in which production bases in Japan act as mother factories for global manufacturing operations and coordinate with overseas bases in China and other Asian countries. We also strive to transmit the manufacturing DNA that we have continued to pass down since Fuji Electric's inception while tackling new manufacturing challenges utilizing IoT, improving productivity, and seeking to provide products and services of the highest caliber.

### Manufacturing Policies

- Innovate production with IoT and M2M\*
- Promotion of global supply chain reform
- Enhance on-site production capabilities, production technology capabilities, and human resource development

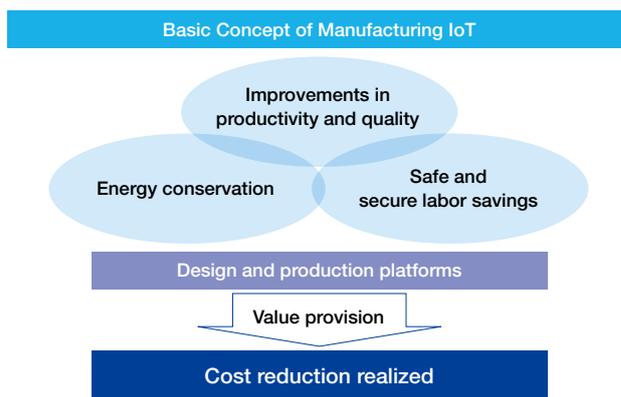
\* Machine to Machine: System for realizing automated and optimal control by having machines exchange information without human involvement



### Initiatives in Fiscal 2016

#### Cost Reductions through Manufacturing IoT

The basic concept of manufacturing IoT has been realized as cost reductions. Based on this concept, we identified model factories at which we worked toward improvements in productivity and quality, safe and secure labor savings, and energy conservation. In addition, we promoted use of Fuji Electric's IoT products while seeking to develop new products. Going forward, these activities will be extended to other factories and proposed to customers to contribute to their businesses.



#### Strengthening of Production Technology Capabilities

In fiscal 2016, we undertook a reorganization of the models manufactured at the Suzuka Factory and the Kobe Factory, which are both mother factories for global manufacturing activities in the power electronics systems business. This move was designed to promote in-house production and automation. Production of components was consolidated into the Suzuka Factory to facilitate efficient manufacturing and the creation of competitive components. Meanwhile, the manufacturing of system products was delegated to the Kobe Factory,

establishing a system in which all processes, from sheet metal processing to shipment, are handled within the factory. As a result, we are now poised to provide more flexible responses to customer needs.



Kobe Factory at which all processes from sheet metal processing to shipment are handled

#### TOPICS

The Otawara Factory, which mainly produces molded-case circuit breakers, and the Mie Factory, which produces vending machines and freezers and refrigerated showcases, have been designated as model factories at which we will advance manufacturing IoT initiatives. At these factories, we are tracking production, facility operation status, and energy usage metrics in real-time and promoting cost reduction by identifying and analyzing bottleneck processes and automating the creation of processed data.



## Enhancement of Human Resource Development

Global mother factories in Japan are working to accumulate technologies and expertise. Moreover, by encouraging our employees to participate in the National Skills Competition and the Skill Grand Prix,\* we are eager to nurture ambitious employees with superior abilities in production engineering and technology that can take on high-level challenges. At the same time, we are actively transmitting the manufacturing DNA cultivated in Japan to overseas operating bases in order to ensure that we can provide the same levels of quality and service anywhere in the world.

\* Held jointly by the Ministry of Health, Labour and Welfare, the Japan Vocational Ability Development Association, and ZENGIEN, this competition lets seasoned engineers put their skills to the test to determine who is the best in Japan. With no age restriction, the level of competition in this event is higher than in the National Skills Competition, which is generally only open to people ages 23 and under.



Transfer of skills in Suzuka factory

## Future Initiatives

In the future, Fuji Electric will pursue production innovations based on the concept of completely localized production along with cost reduction utilizing IoT in order to boost product competitiveness. In fiscal 2017, production activities will commence at the second vending machine factory in Dalian, China. Also, measures for automating testing and inspection processes, utilizing AI for autonomous production, and reducing cost with IoT will be implemented under the guidance of global mother factories in Japan.

## Procurement

To increase profitability and reduce risks, Fuji Electric has built a global-scale procurement system and is promoting CSR-oriented procurement activities as it strives to keep down all costs of materials used in products as well as indirect materials.

### Procurement Policies

- Promote Strategic Procurement in coordination with Design and development departments
- Heighten indirect material cost reductions and achieve reductions on a global scale
- Enhance global procurement capabilities and cultivate purchasing personnel
- Promote CSR in Procurement



Procurement training at a production base in China

### Initiatives in Fiscal 2016

#### Strengthening of Cost Reduction Measures for Direct and Indirect Materials

In fiscal 2016, the scope of Strategic Procurement (Early Procurement Involvement) activities, which procurement department become involved from the early stages of R&D to reduce costs, was expanded to include suppliers. This move

enabled us to realize cost reductions through improved productivity and other means by promoting coordination between procurement departments, design departments, and suppliers.

#### Enhancement of Global Procurement Capabilities

In order to enhance global procurement capabilities, we made an effort to educate purchasing personnel working at production bases located in China and the ASEAN region regarding compliance, procurement risks, and negotiation techniques. In addition,

we stepped up coordination with global mother factories in Japan and sharing of supplier and parts information on a Company-wide basis while approaching new local suppliers, successfully furthering growth through these efforts.

### Future Initiatives

Moving forward, we will continue to enhance global procurement capabilities while developing procurement information databases that can be accessed from any base around the world in order to facilitate business growth.