

FY2018 Medium-Term Management Plan

Industrial Infrastructure Business

May 26, 2016

Fuji Electric Co., Ltd.


Industrial Infrastructure Business Group

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

Business Overview

Provide **lifecycle services** for increasing energy efficiency during production and stabilizing facility operation

◆ Industrial Plant
Production reform and energy saving solutions combining electricity and heat




[equipment]

- Drive control systems
- Instrumentation systems
- Air-conditioning facilities
- Substation equipment, power supply facilities
- Distribution and conveyance equipment
- Plant factories


Factory energy management system (FEMS)
(Model factory: Fuji Electric's Yamanashi Factory)

- Principal customer industries
- Steelmaking
 - Chemicals
 - Automobiles
 - Electricity
 - Railway
 -
 -
 -


◆ Transmission and Distribution
Power supply facilities providing stable supplies of energy



Power grid substations
(Large-capacity transformers)




Industrial substations
(Power receiving and distribution substation equipment)




Industrial power supplies
(Large-capacity rectifiers)
(No. 2 global share)


◆ Industrial and Instrumentation Equipment
Instrumentation equipment and sensor that helps protect the environment and ensure safe and secure facility operation



Measuring instruments
(Gas analyzer)
(Share leader in Japan)



Monitoring and control system



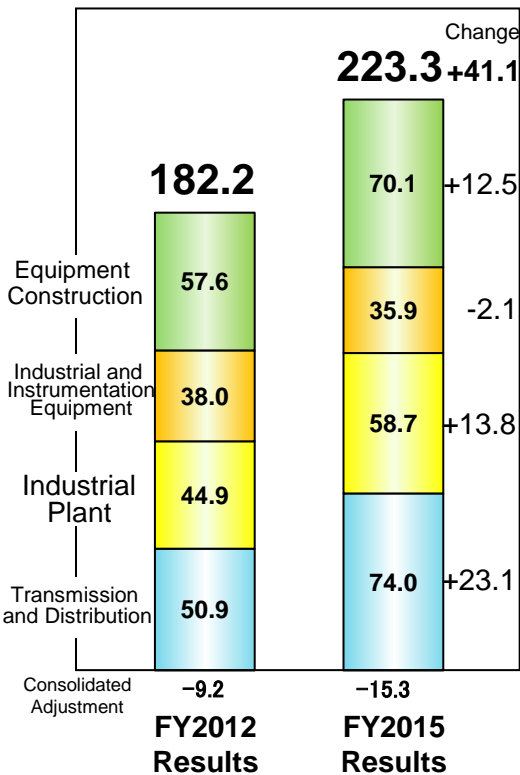
Radiation measurement equipment
(Personal dosimeter)
(Top share in Japan)

◆ Equipment Construction
Equipment construction services supporting industrial infrastructure

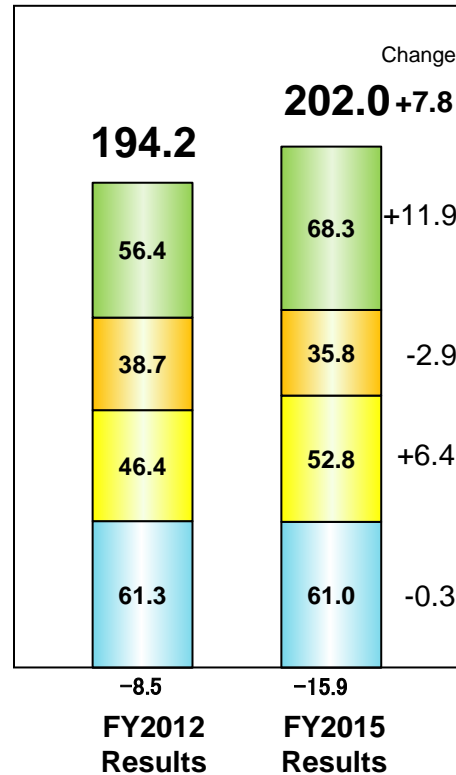
Review of FY2015 Medium-Term Management Plan

- vs FY2012
 - Increases in net sales (+¥7.8 billion) and operating income (+¥1.7 billion) supported by domestic energy saving and replacement demand
 - Substantially higher orders received (+¥41.1 billion)
 - Operating margin up from 5.8% to 6.4%

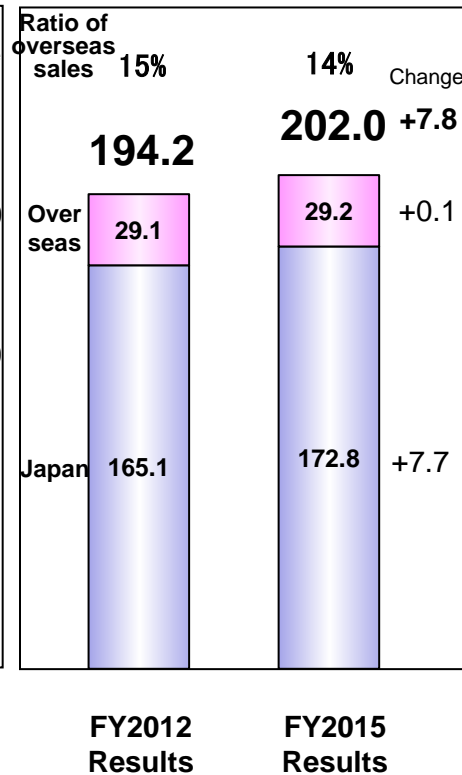
Amount of Orders Received by Subsegment (Billion yen)



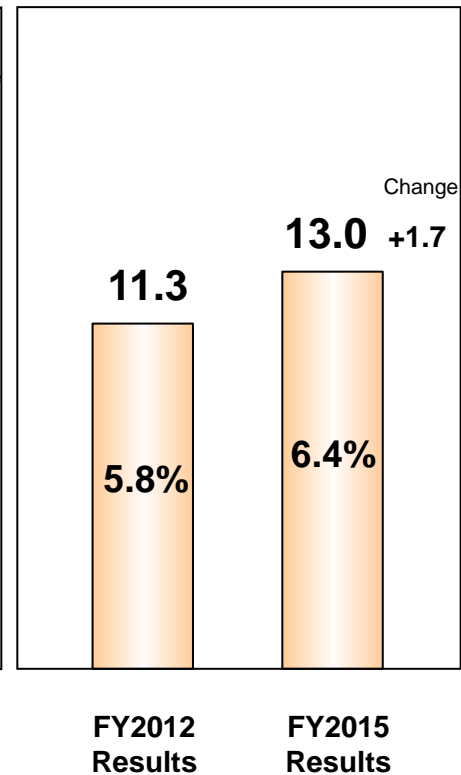
Net Sales by Subsegment (Billion yen)



Net Sales in Japan / Overseas (Billion yen)



Operating Income / Operating Margin (Billion yen)



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

1. Results (Accomplishments)

- ◆ Increased operating margin (6.4%)—Secured income via thorough cost reductions
 - ◆ Established and consolidated overseas production bases
 1. Thailand: Established switchgear production facilities (FMT), commenced production in 2015
 2. China: Withdrew from switchboard and molded-case transformer operations, sold business in 2016
 - ◆ Conducted M&As in Asia—Acquired products and sales channels
 1. Fuji Tusco (Thailand; transformers): Acquired in 2013, consolidated in FY2015
 2. Fuji CAC (Vietnam; system design, controllers): Acquired in 2015
 - * 3. Fuji SMBE (Singapore; switchgears and controlgears): Acquired in 2014
 - * 4. Fuji Gemco: (India; system design, drives): Acquired in 2016
- * Conducted jointly with Power Electronics segment

2. Challenges

- ◆ Sluggish growth in overseas businesses
 - Low market growth in China and Thailand, decreased exports in Middle East, and delayed localization of operations
- ◆ Delays in starting up new industrial plant field businesses

FY2018 Medium-Term Management Plan

[Japan]

- **Respond to industrial market changes**
- **Continue capturing infrastructure investment and replacement demand**
 - **Help optimize lifecycles of customer equipment and facilities by bundling IoT technologies and services with sensor, power electronics, cooling and heating, and other core technologies**

[Overseas]

- **Accelerate localization to expand operations in Asia and other overseas markets**
 - **Expedite transition from equipment business to system business**

[Japan]

● Year-on-Year Increase in Capital Investment by Industry (%)

	2015	2016	2017	2018
Manufacturing	+10	+4	+5	+5
Material industries	+5	+4	+3	+3
Assembly industries	+15	+5	+6	+6
Non-manufacturing / public	+1	-1	0	0
Electricity / gas	+4	-1	0	+1
Telecommunications	-3	-3	0	0
Distribution (retail / wholesale)	+1	-1	-5	+2
Average	+3	0	+1	+1

● Summary (Japan)

◆ Manufacturing

- Material industry investment primarily for **addressing aged equipment**
- **Automobile-related** investment high in assembly industry

◆ Non-manufacturing

- Investment in **2016 down** due to rebound from increase in 2015
- **Overall investment levels projected to be consistent**

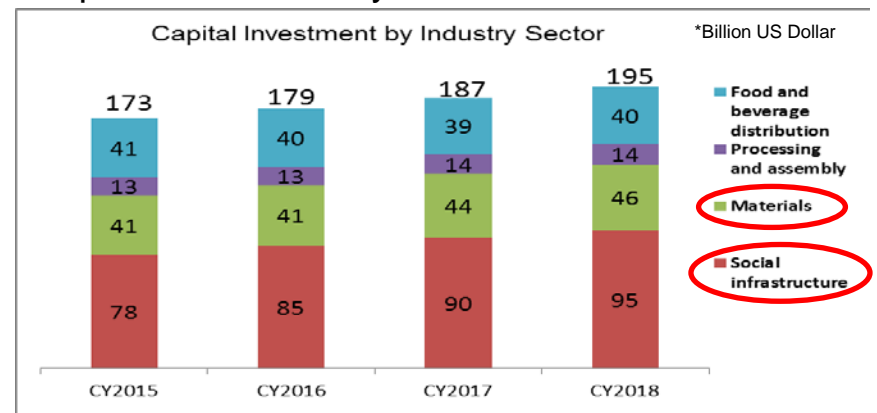
Source: FUJI KEIZAI CO., LTD

[Asia]

● Year-on-Year Increase in Capital Investment by Country (%)

	2015	2016	2017	2018
5 ASEAN countries	+3	+4	+4	+4
Indonesia	0	+2	+4	+4
Thailand	+6	+5	+4	+4
Malaysia	+4	+6	+5	+4
Vietnam	+11	+6	+7	+8
Singapore	0	+1	+3	+2
India	+6	+8	+10	+10
China	+6	+3	+2	+4

● Capital Investment by Sector in 5 ASEAN Countries



Source: April 2016 forecasts from IHS Global Insight

<Domestic Market Forecast> CY2015→2018 (CAGR)

+2%

- Growth in IoT and other manufacturing reform and service demand
- Increased investment due to electricity retail deregulation
- Progressive redevelopment of social and industrial infrastructure in light of 2020 Tokyo Olympics and infrastructure aging
- Ongoing distribution reforms through TPP

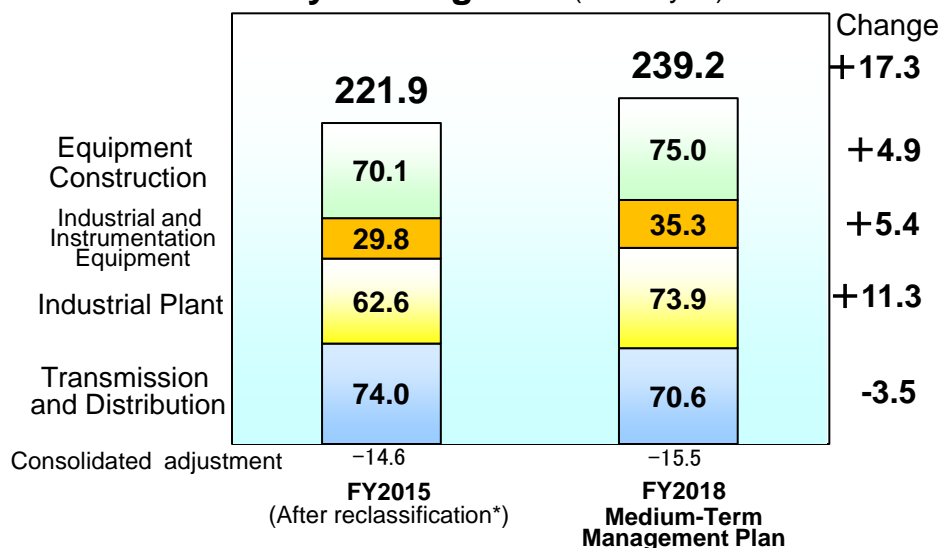
<Overseas Market Forecast> CY2015→2018 (CAGR)

+3%

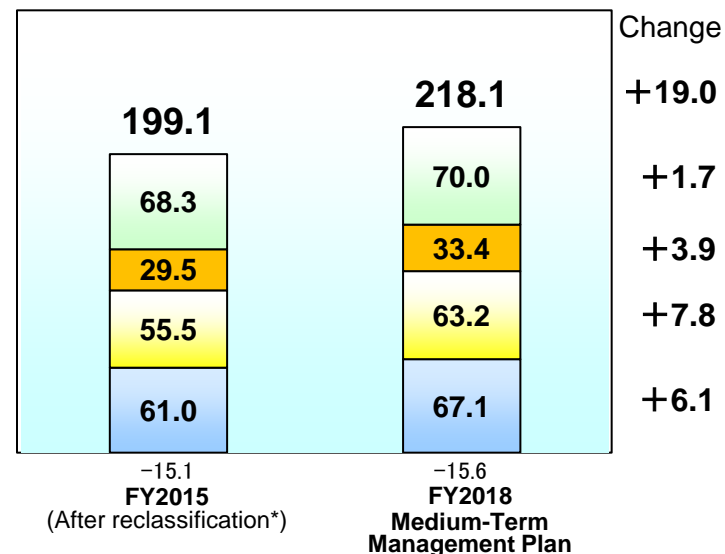
- **China: 0%**
Increase in environmental and factory and other automation investment despite slowed growth in overall investment
- **Asia: +4%**
Increased energy demand and accelerated production equipment investment

Source: Fuji Electric based on customer investment trends

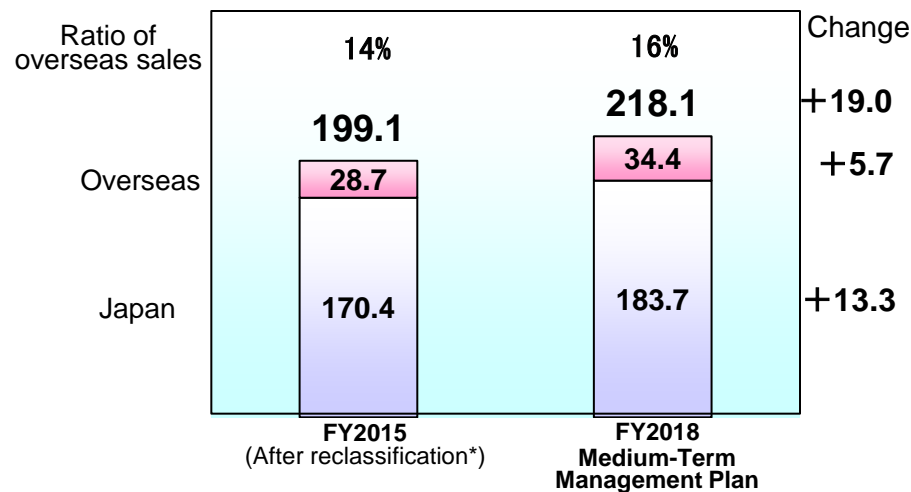
Amount of Orders Received by Subsegment (Billion yen)



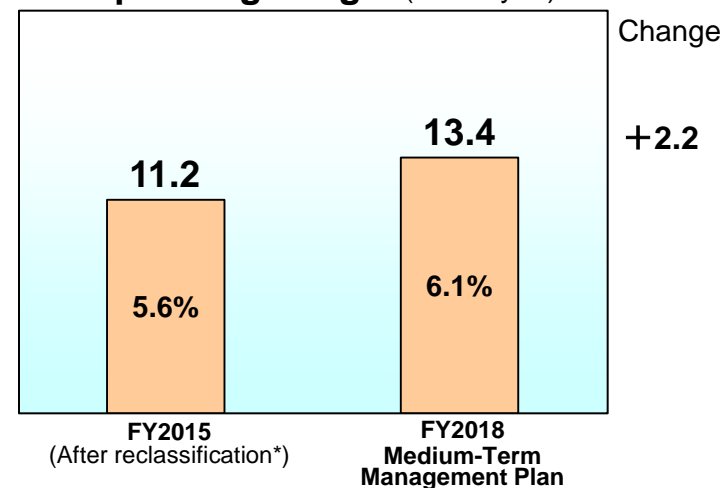
Net Sales by Subsegment (Billion yen)



Net Sales in Japan / Overseas (Billion yen)



Operating Income / Operating Margin (Billion yen)

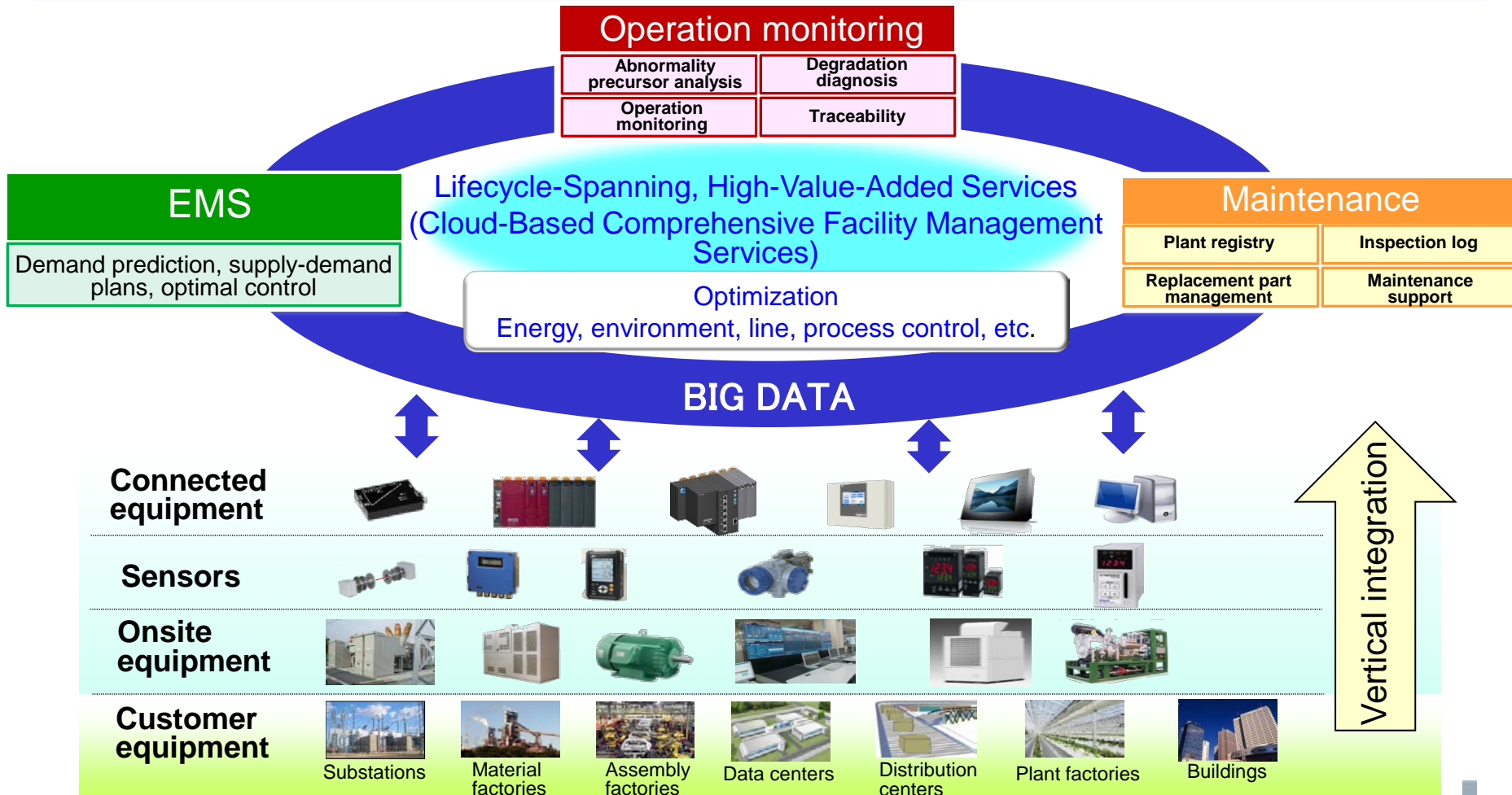


*Figures for FY2015 have been restated to reflect organizational restructuring conducted in FY2016.
 Restructuring details:
 Change of segment responsible for controllers (industrial instrumentation equipment → power electronics)
 Change of segment responsible for plant factories and distribution operations (food and beverage distribution → industrial plant)

- Expand domestic operations
 - Grow system and service businesses based around IoT
 - Deploy initiatives at Fuji Electric factories
 - Expand service businesses arising from equipment diagnoses
 - Develop new businesses in growth fields based around core products
 - Focus on IDC, distribution, and plant factory fields

- Expand operations in Asia
 - Strengthen completely localized businesses through M&As
 - Step up business strategies in Asia
 - Reinforce local production systems (equipment~systems)
 - Grow environmental measure operations (China → Asia)

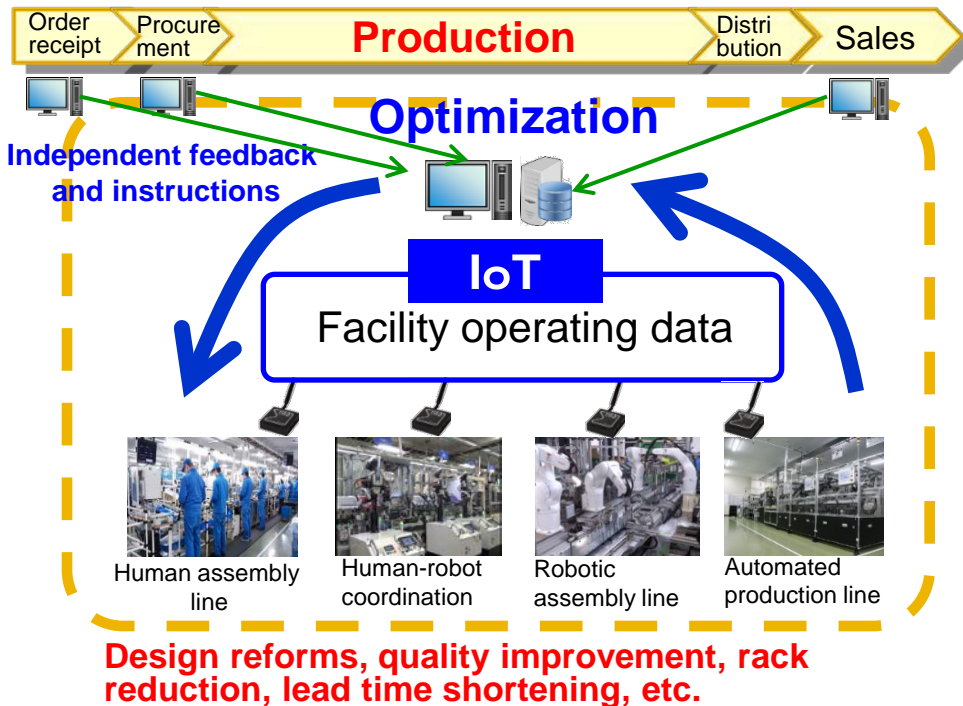
- Evolve offerings to IoT based on track record for various onsite equipment and sensor and service combinations
- Provide lifecycle-spanning, high-value-added services and products
- Target ratio of IoT-related product and system sales to total net sales of 20% in FY2018



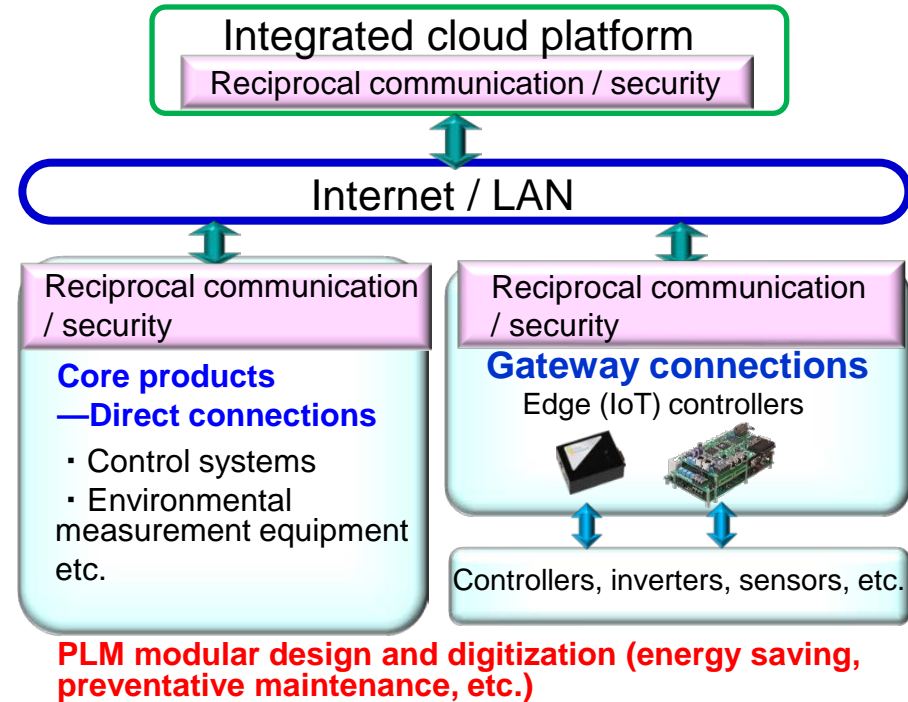
Deployment of Initiatives at Fuji Electric Factories

- Conduct advanced introduction of IoT at Fuji Electric factories to verify and use factories as showrooms
- Provide packages bundling services for individual processes, equipment, and lines

Verification at Fuji Electric Factories



Construction of IoT Platforms



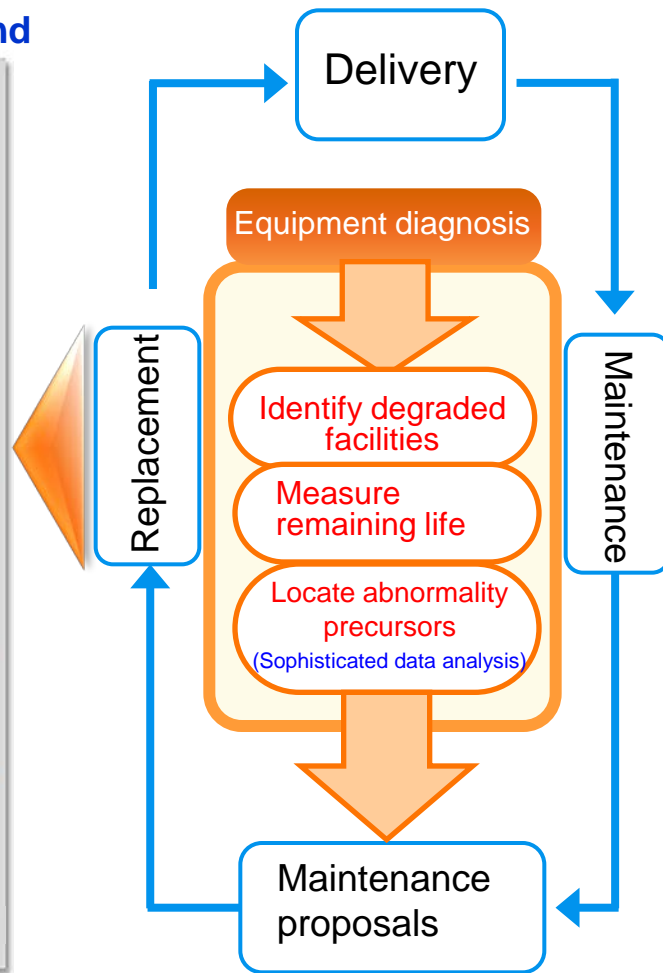
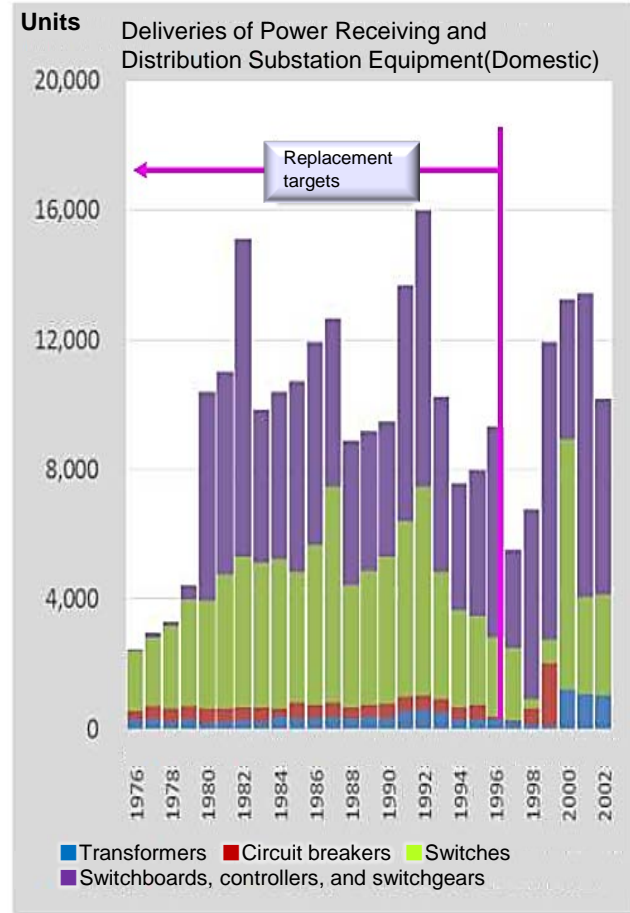
Provide as packages

Help resolve customer issues (maximize efficiency, prevent trouble, identify malfunctioning equipment)

Expansion of Service Businesses Arising from Equipment Diagnoses

- Stimulate latent facility replacement demand by **diagnosing customers' plant equipment**
- Utilize facility replacement as an opportunity to make proposals for **overall plant optimization**
- Target ratio of service sales to total net sales of **35%** in FY2018 (31% in FY2015)

Latent Facility Replacement Demand



Equipment Diagnosis and Monitoring Offerings

- Employing unique wireless vibration sensors Cloud
Industrial motors vibration monitoring system Available now
- Utilizing proprietary prediction and diagnostic technologies Cloud
Highly precise oil-immersed transformer lifespan evaluations Available now
- Detecting deterioration of single cells using proprietary technologies Cloud
Battery deterioration diagnostics for power supply facilities Available now
- Detecting degradation automatically using unique analytical technologies Cloud
Degradation detection for high-voltage circuit breakers Scheduled for Sep. 2016 launch

Sophisticated Data Analysis

Locating abnormality precursors using unique analytical technologies

Data analysis Available now

Multivariate statistical process management

Expand offerings

- Provide **one-stop service for all facilities** requiring energy and environment optimization (**Fuji Electric's Strengths**)
 - **Bundling services** ranging from EPC to maintenance
 - Realizing safe and secure **energy savings** in areas ranging from substation equipment to energy control and management
 - Offering safe and secure **environment optimization** with air-conditioning equipment and control systems
 - Providing **support services** for customer facility operation, operator development, etc.
- Target ¥6.9 billion increase in net sales from industrial plant field and new businesses (FY2015: ¥8.6 billion → FY2018: ¥15.5 billion)

IDCs



Distribution



(Photograph provided by Fives Intralogistics K.K.)

Plant factories



- Develop track record by branching out from modular data centers and container-type data centers to handle **lineup** of building-type data centers
- Accelerate development of **operations in Asia** based on domestic track record

Facility EPC and Asian Operations

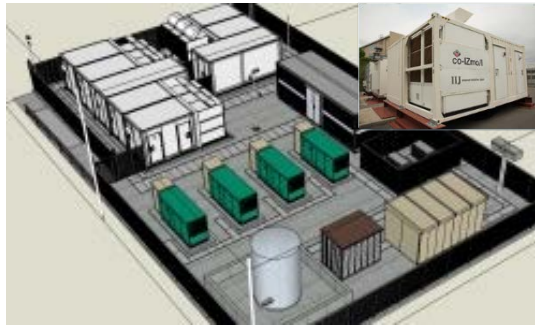
Aomori Cloud Base Co., Ltd.



Modular IDC

(First in world to use snow and ice for cooling)

Internet Initiative Japan Inc. (Laos)



Container-type IDC

(High-voltage power supply and in-house generation facilities)

Kingsland Development Pte Ltd (Singapore)



Building-type IDC

(All equipment installed in building)

Core Products (High-Reliability Electrical and Air-Conditioning Technologies)



Indirect outside air-conditioning

(Energy-saving technology)



UPS

(Power device technology)



Substation equipment

(Energy-saving, electricity distribution technology)



Air-conditioning / energy management systems

Expansion of Distribution Field Operations

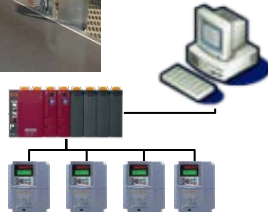
- Build upon conveyor control and refrigeration facility engineering track record
- Provide lifecycle support using sophisticated analysis and prediction technologies

Conveyor Control Engineering



Large-scale courier distribution center

(Photograph provided by Fives Intralogistics K.K.)



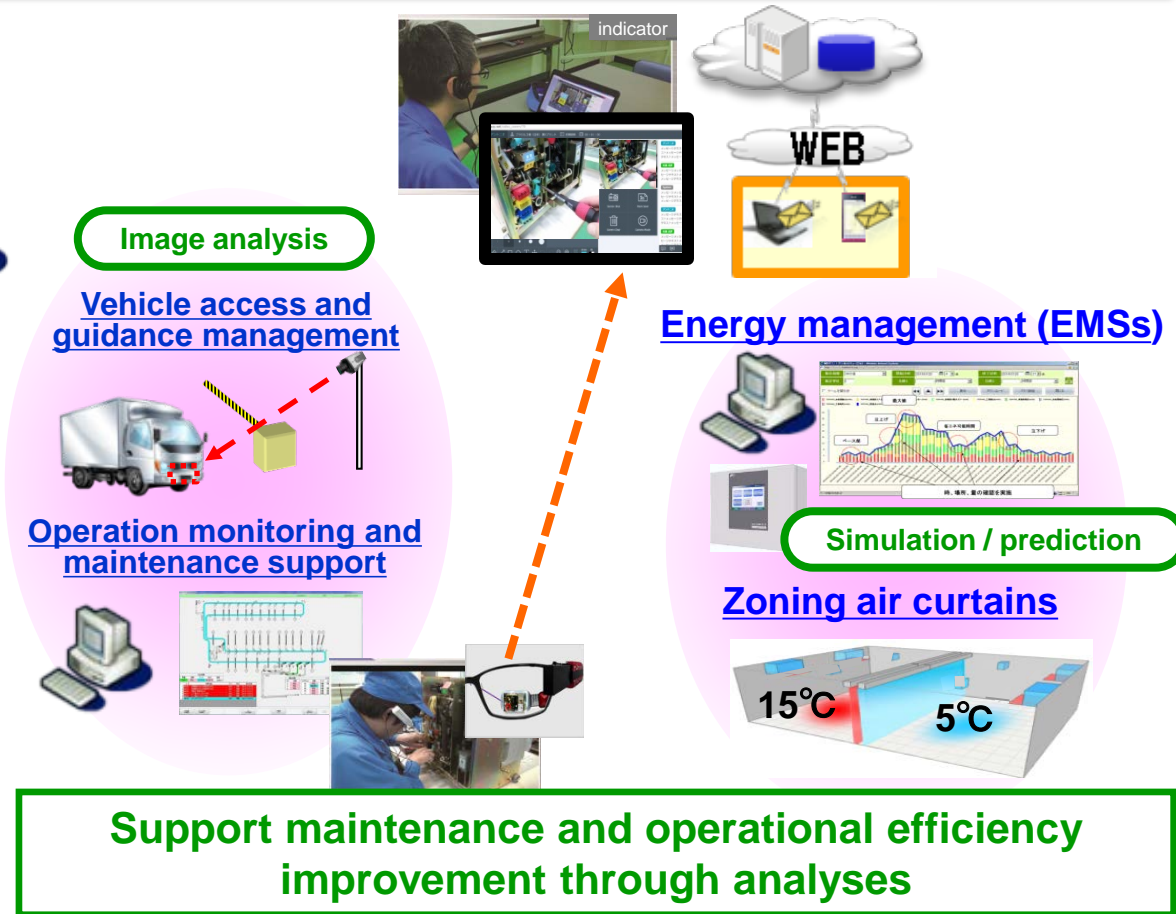
Refrigeration Facility Engineering



Ultra low-temperature freezer (-55°C)

Low-temperature distribution center

Core Products (IoT, Sensors)



Expansion of Plant Factory Operations

- Expand track record for plant factories that use sunlight and those that only utilize artificial light
- Grow operations by leveraging Tomatoh Farm operation track record → Commence overseas expansion

Facility EPC

Sunlight using facilities

Tomatoh Farm Co., Ltd. (Company investment)

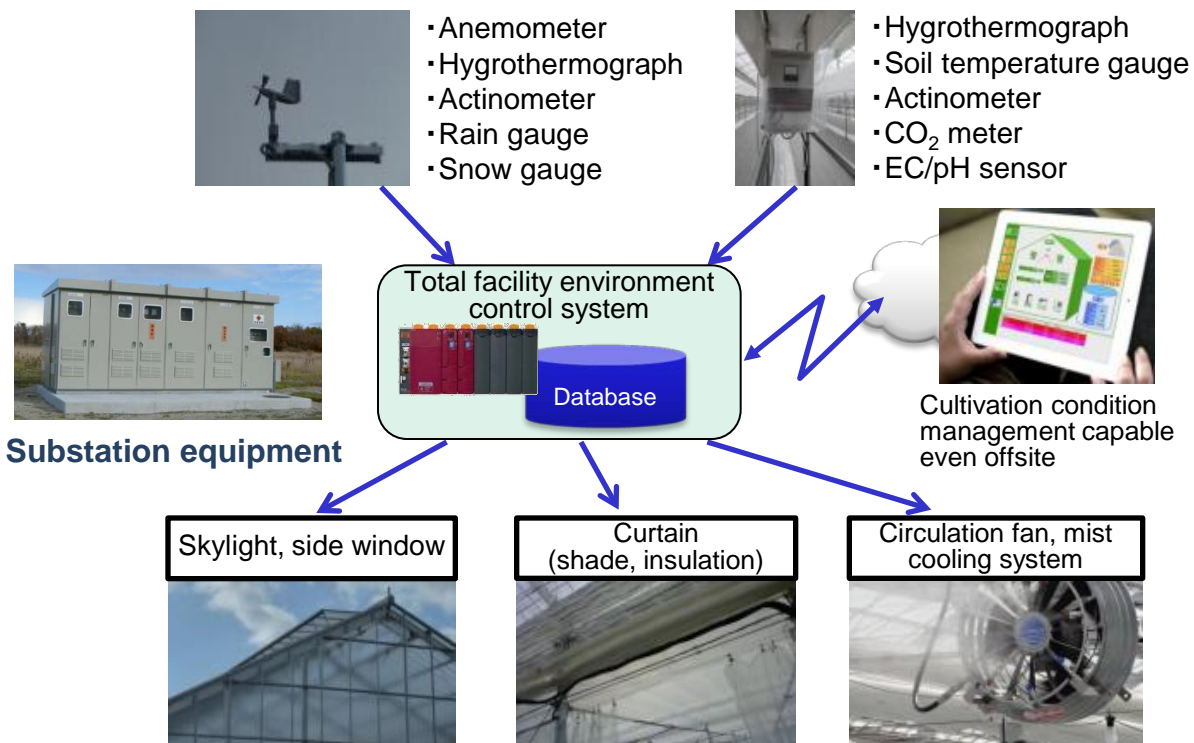


Facilities using only artificial light

Azumer Plant Factory Corporation
(Contract counterparty: MORIHISA Co., Ltd.)



Core Products (Composite Climate Control Systems)



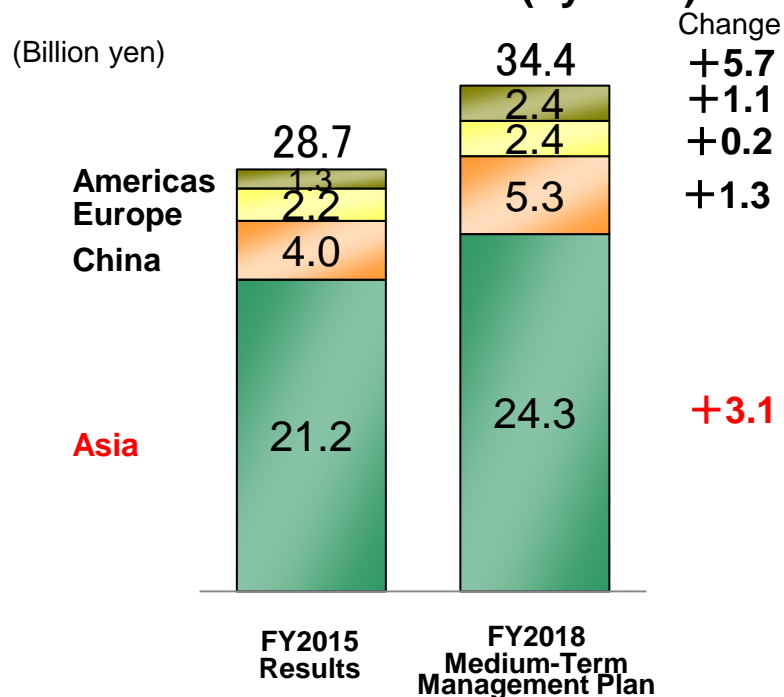
Provide support for areas ranging from business plan drafting to operation and maintenance

Expand Operations in Asia (Basic Strategy / Plan)

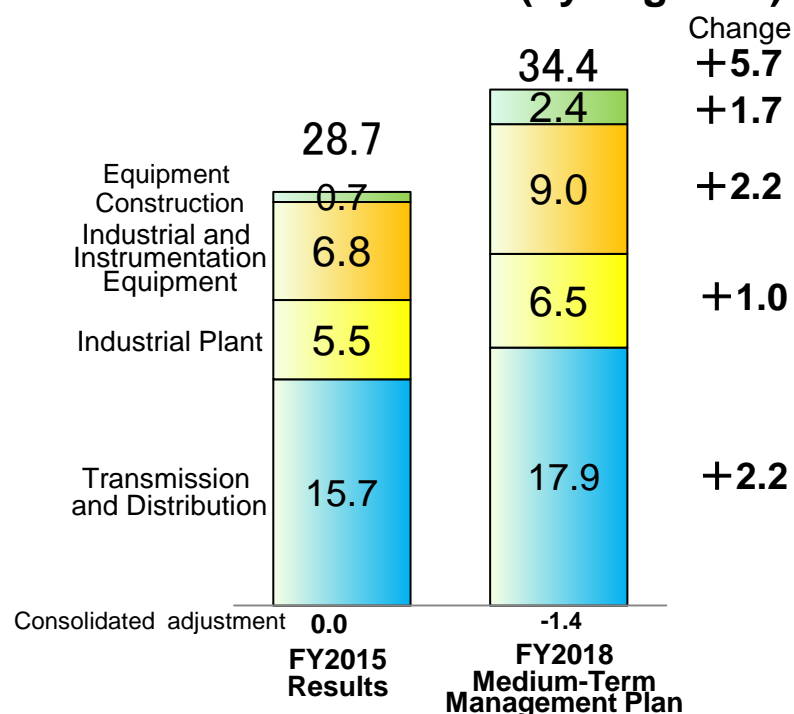
Grow overseas businesses centered on **Asia** by promoting localization of operations (sales growth of 35% over FY2015 at overseas sales companies in FY2018)

- ◆ Step up strategies in ASEAN region (accelerate measures by delegating authority)
 - Established APAC regional corporate strategy office (Singapore)
- ◆ Realize local production, consumption, and design by reinforcing local production systems
 - Increase transformer production in Thailand (Fuji Tusco, FMT)
 - Commence system design and controller production in Vietnam (Fuji CAC)

Overseas Net Sales (by area)



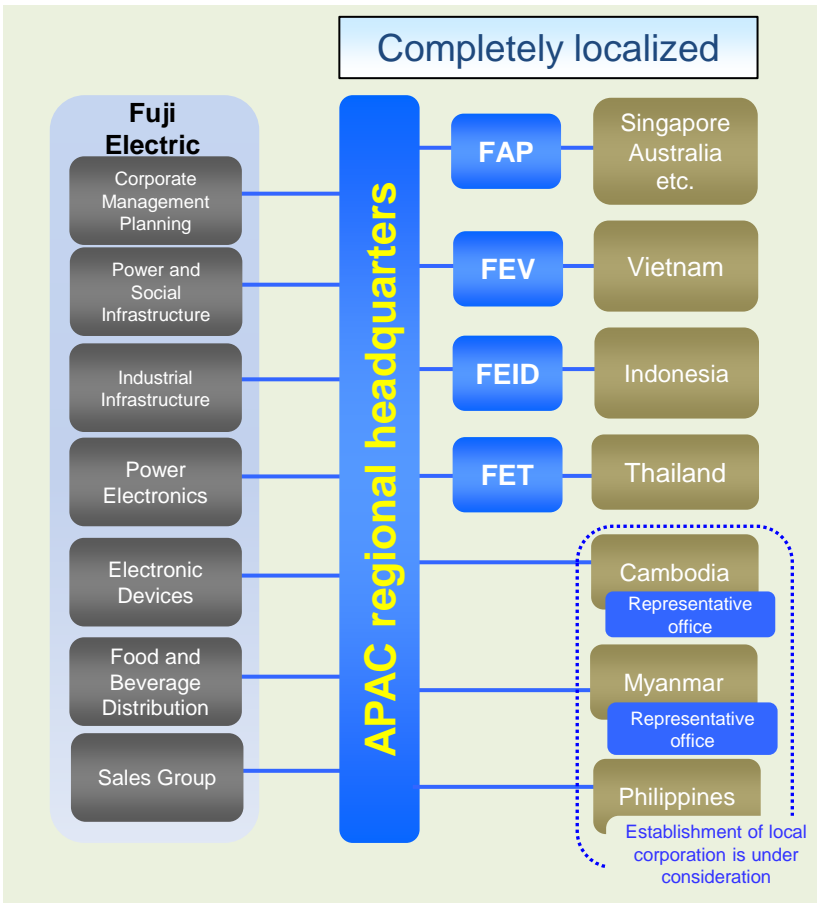
Overseas Net Sales (by segment)



Step Up Strategies in ASEAN Region

Established **APAC regional corporate strategy office** within APAC regional headquarters (April 2016)

- ➔ Draft cross-field business strategies for Asia to optimize and expedite operations in this region
- ➔ Integrate marketing, engineering, and corporate functions in Asia



APAC regional corporate strategy office

< Aim >

- ◆ Maximize Company strengths through **integrated management** of previously individually operated **Industrial Infrastructure and Power Electronic segments**
- ◆ **Optimize supply chain** by integrating sales, engineering, and production bases dispersed throughout Asia

Integration of business functions

Marketing

- ◆ Market condition and trend analysis
- ◆ Production strategies
- ◆ Pricing strategies
- ◆ Sales channel strategies

Engineering

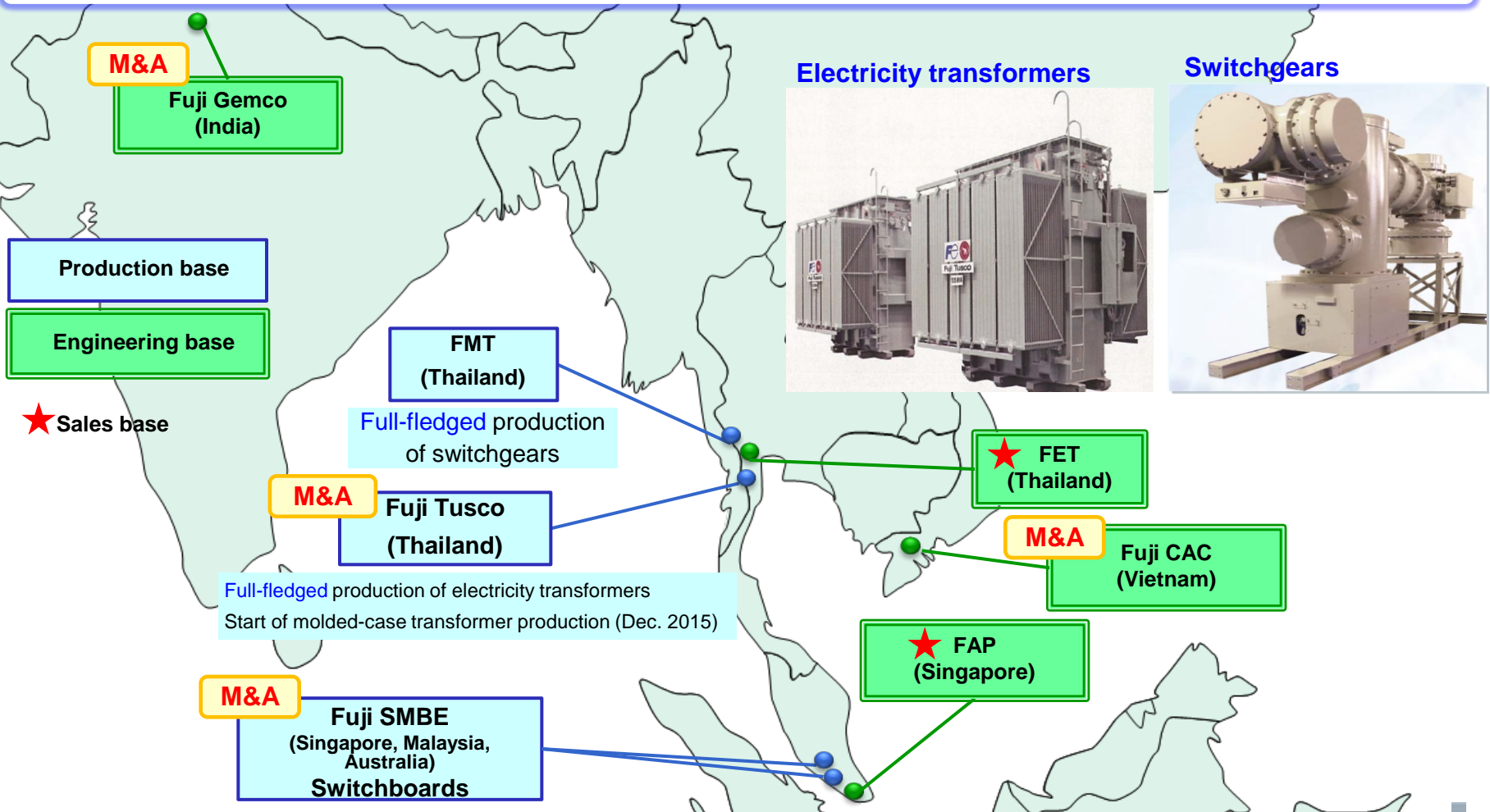
- Provide wide range of offerings covering substations, facility electrical equipment, and automation systems
- Flexibly accommodate everything from turnkey projects to small-scale systems

Integration of corporate functions

Reinforcing Local Production Systems in Asia

Strengthen coordination across Asian supply chain through Asian business strategy office

- ➔ Develop completely localized businesses possessing sales, engineering, and production bases
- ➔ Complete supply chain through M&As



Growth of Environmental Measure Operations

Respond to global environmental measures needs through businesses **centered around cutting-edge equipment**

- ◆ Expand out from China to other parts of Asia
- ◆ Deploy package bundling gas analyzers, dust collectors, etc.

Pollutant Identification Analysis

Provide **one-of-a-kind products** that help prevent environmental pollution through real-time quantitative analysis of **PM2.5** contents



Receipt of 2015 10 Greatest Innovations Prize



Aerosol particle combined analyzers

Analyze

Environmental pollution countermeasures

Contribute to safe and secure environmental measures

Measure

Continuous Exhaust Gas Measurement

Realize stable, continuous measurement



Infrared gas analyzers

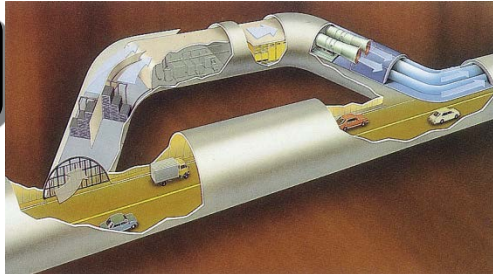


Laser analyzers

Eliminate pollutants

Tunnel Ventilation Equipment

Contribute to improved air quality around tunnels



Exhaust Gas Cleaning System for Ships

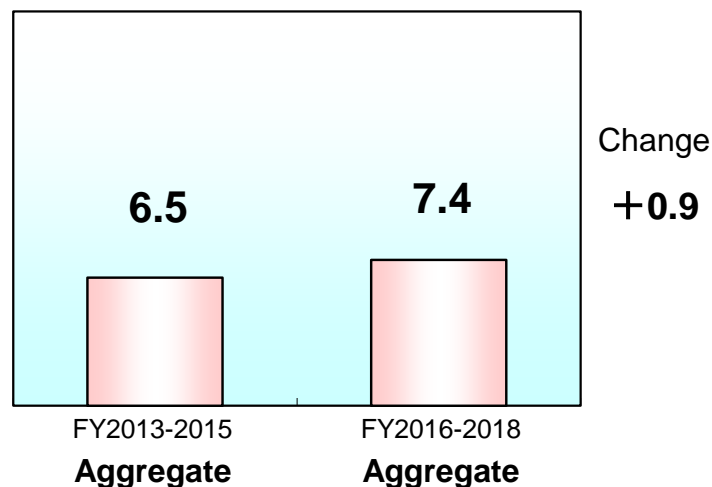
Wet scrubbers
Remove SO₂ and PM from exhaust gas

Electric dust collectors
Remove PM from exhaust gas

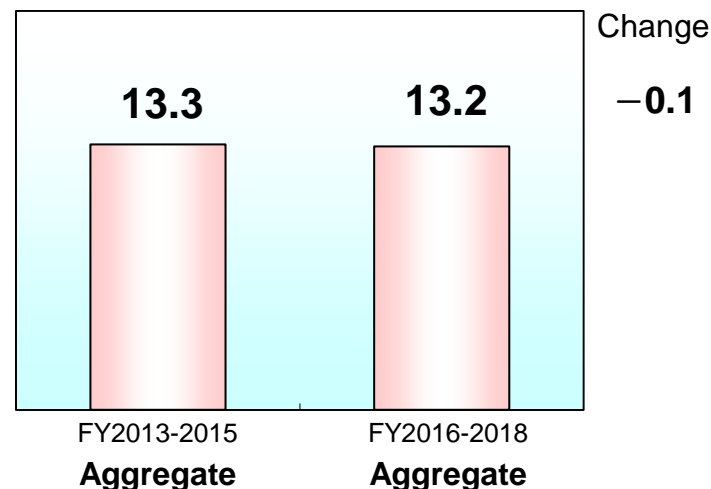


- ◆ Capital investment: Increase investment in core domestic factories
- ◆ R&D: Focus on IoT compatible development and reinforcement of core products

Capital Investment (Billion yen)



Research and Development (Billion yen)



Major themes

- Reinforcement of substation equipment test facilities (Chiba Factory)
- Increased rationalization of manufacturing systems (Tokyo Factory)

Major themes

- IoT compatible development (including platforms)
- Industrial distribution systems
- Compliance with overseas specifications (sensors, switchgears, etc.)

* 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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