

FY2015 Medium-Term Management Plan

Power Electronics Business

August 26, 2013

Fuji Electric Co., Ltd.










Power Electronics Business Group

- Business Overview
- Market Trends / Business Targets
- Business Strategies / Priority Measures by subsegment
- R&D Expenditures / Plant and Equipment Investment

Business Overview

Power Electronics

Business Overview (Strengths and Market Position)

	Major products	Strengths	Market position
<p>Drive</p> <ul style="list-style-type: none"> Industrial drives Transportation power electronics 	 Industrial inverters  Servo systems / industrial motors  Automotive electronics  EV chargers	<ul style="list-style-type: none"> Top class industrial inverter technologies Product lineup responsive toward global needs Front runner in product development (SiC inverters, EV quick chargers, etc.) 	<ul style="list-style-type: none"> Low-voltage inverters Domestic share: 22% (No.2) Global share: 4% (No.7) High-voltage inverters Domestic share: 12% (No.3)
<p>Power supply</p> <ul style="list-style-type: none"> UPSs Switching power supplies PCSs 	 Uninterruptible power supplies (UPSs)  Switching power supplies  PCSs for mega solar systems	<ul style="list-style-type: none"> Power devices and modules manufactured by Fuji Electric Industry-leading efficiency achieved by Fuji's power conversion technologies System integration technologies for highly reliable systems 	<ul style="list-style-type: none"> Medium- and large-capacity UPSs Domestic share: 23% (No.2) Share of units sold PCSs Top class domestic share
<p>ED&C components</p> <ul style="list-style-type: none"> Electrical distribution and control components 	 Magnetic contactors  Molded case circuit breakers	<ul style="list-style-type: none"> Strong track record Circuit-breaking technologies with high-quality and high-reliability 	<ul style="list-style-type: none"> Magnetic contactors Domestic share: 49% (No.1) Global share: 4% (No.7)

Market Trends / Business Targets

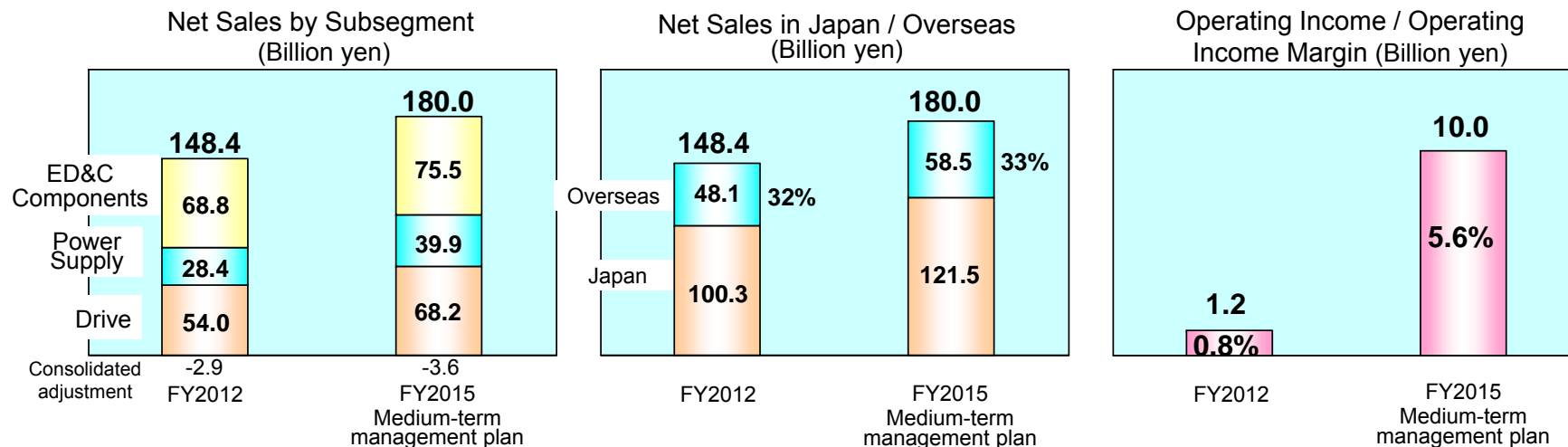
Power Electronics Market Trends

Region / country	Forecasts of Market conditions	Growth Rates 2012–2015 (CAGR)	
		GDP* Company's estimates based on IMF figures	Power electronics- related markets (IMS, MIR)
Japan	Due to economic policies and obsolescence of social and industrial infrastructure, energy investment (renewable energy, high-efficiency systems), renewal investment for obsolete equipment and facilities, and energy-saving investment accelerate	1.0–2.5%	3–4%
Asia	Centered on Thailand, Indonesia, Vietnam, and India, infrastructural investment increases, electric power related investment increases due to higher energy demand, and capital investment increases as Japanese companies accelerate entry into markets	5.9%	10–11%
China	Although urbanization and environmental investment accelerate, faces risk of softening growth rate as benefit of economic stimulus measures lessens and exports and industrial production slow down	7.8%	6–7%
The Americas	Industrial production remains favorable thanks to shale revolution and renaissance in manufacturing industry	2.6%	5–7%
Europe	Although promises to emerge from economic recession phase and see modest pick-up in capital investment from 2014 onward, risk remains	1.2%	4–5%

*GDP: Estimates based on IMF figures (July 2013 announcement) and documents issued by respective think tanks

Basic Policies

- Supply competitive products of drive, power supply, and ED&C components, in the forms of components as well as systems incorporating them to grow the operation into a core business for the Group (FY2015 targets: Net sales of 180.0 billion yen, operating margin of 5.6%)
- Thoroughly reduce costs and introduce new products to expand sales in Japan, China, and other parts of Asia, then pursue improvement of profitability
- Develop industry-specific strategies to respond properly and quickly to the diversifying needs of customers
- Provide differentiated power electronic products and systems with high added-value, such as high durability to environmental conditions, superior safety and security, etc.

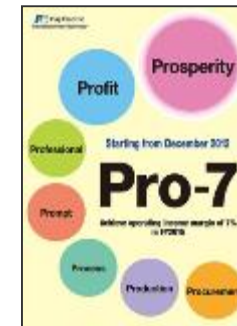
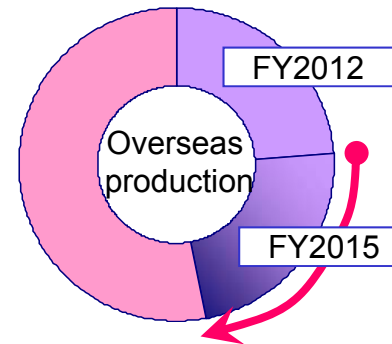
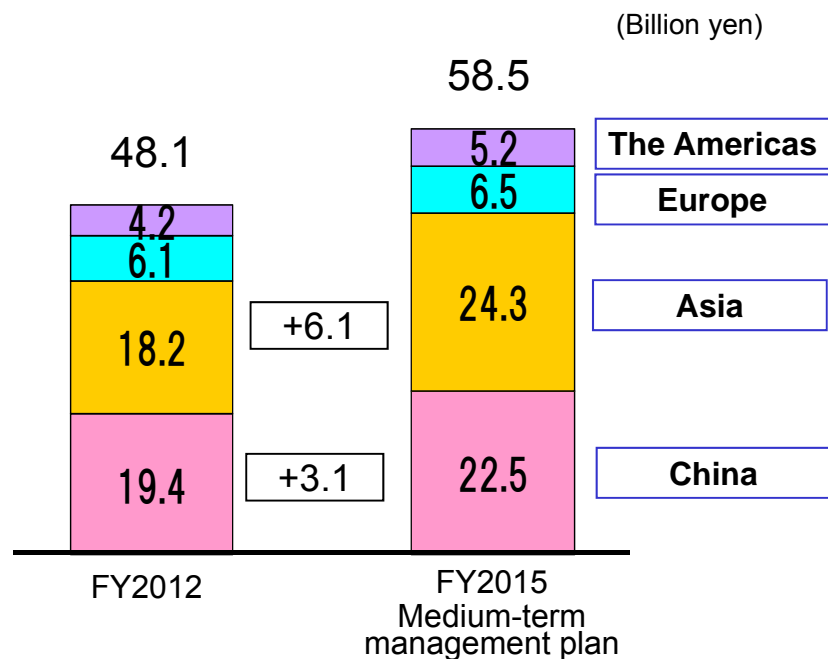


Reduce costs by expanding overseas production and introduce highly price-competitive products

–Promote local design, local production, and local consumption–

Overseas Sales Targets by Region

Overseas sales: Increase by approximately 10.0 billion yen
Overseas sales ratio: 32% → 33%



Expand overseas production ratio 24%→47%

Reduce costs through local procurement, etc.
(realize reduction of approximately 10.0 billion yen)

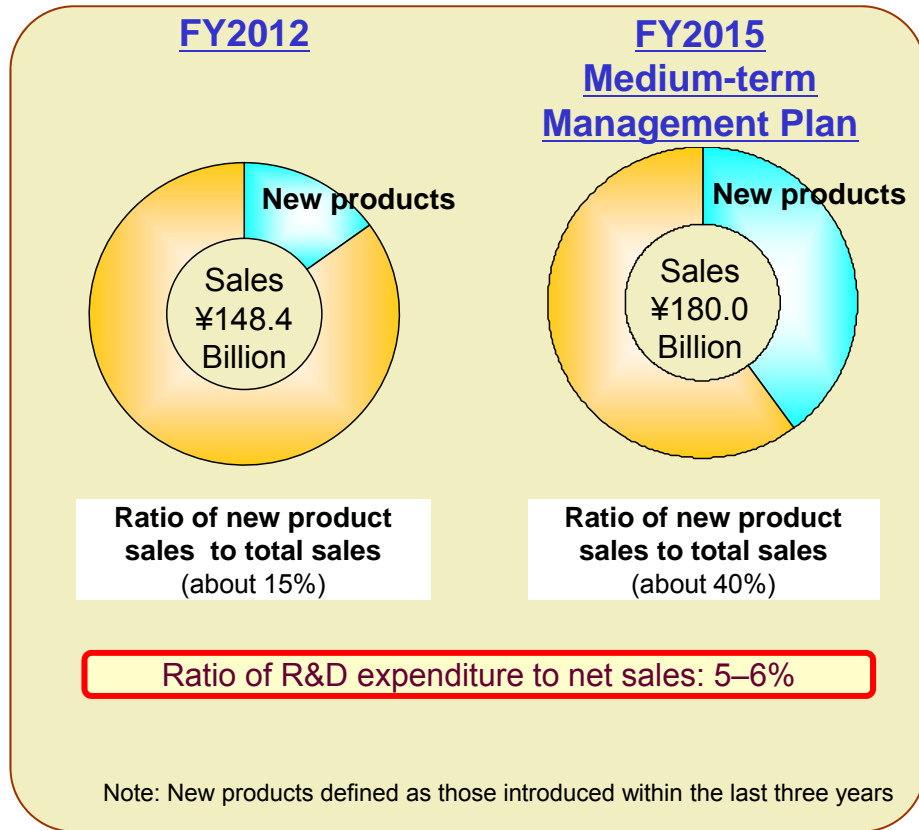
■ Commence production at new factory in Thailand (FY2013)



Increase sales by introducing new products worldwide and expanding sales of systems and services

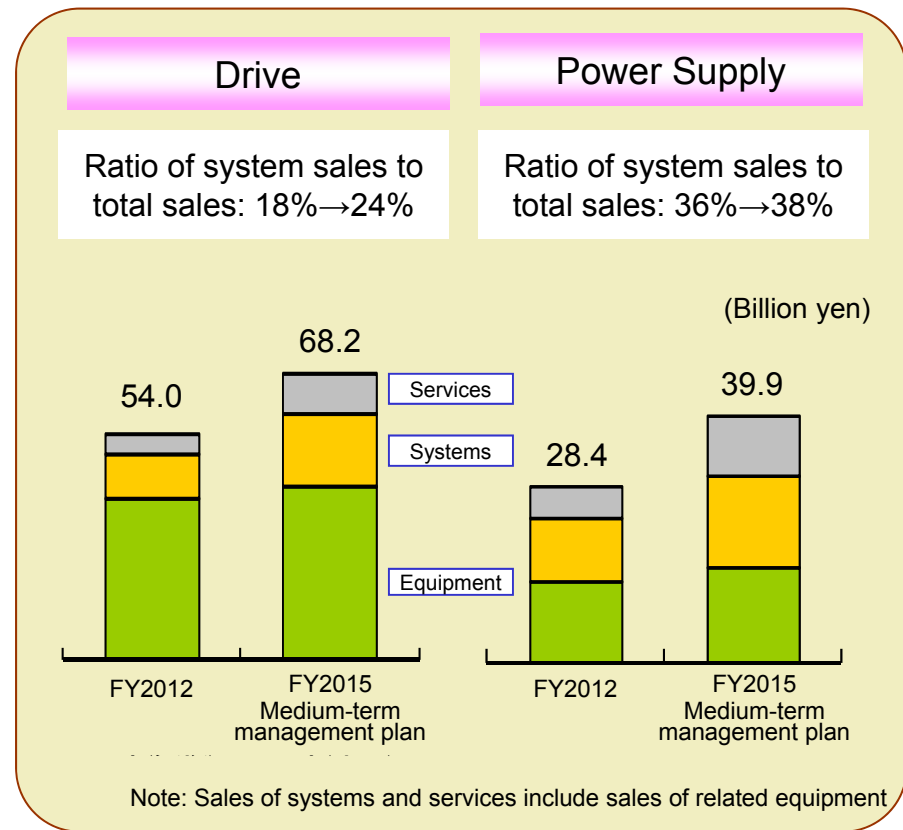
Increase ratio of new product sales to total sales

Actively develop and introduce new products



Expand sales of systems and services

Boost values by increasing sales of systems and services



Business Strategies and Priority Measures by Subsegment

Drive

Business Strategies / Priority Measures

Business Strategies

- Strengthen businesses targeting the energy saving market and the growing emerging markets and regions
 - Overseas (China, Asia, etc.) and domestic
- Accelerate creation of product series and increase sales of industrial drives
- Explore new areas of power electronics applications including products for EVs and rolling stock

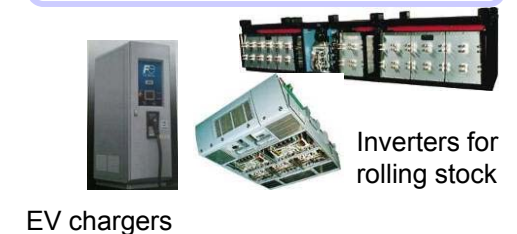
Industrial drives



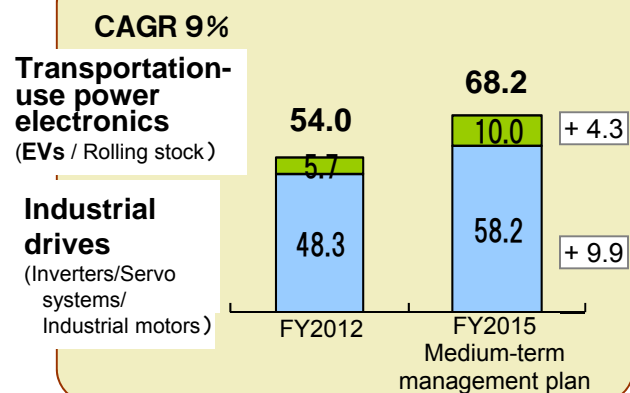
Priority Measures

- Strengthen direct sales and technical sales efforts targeting equipment manufacturers and end users
- Institute industry-specific measures for industrial drives in Japan and overseas
- Introduce new and one-of-a-kind products that respond to global needs
- Reduce costs through overseas production/procurement, and optimize supply chains
- Accelerate application development of next-generation power devices and modules

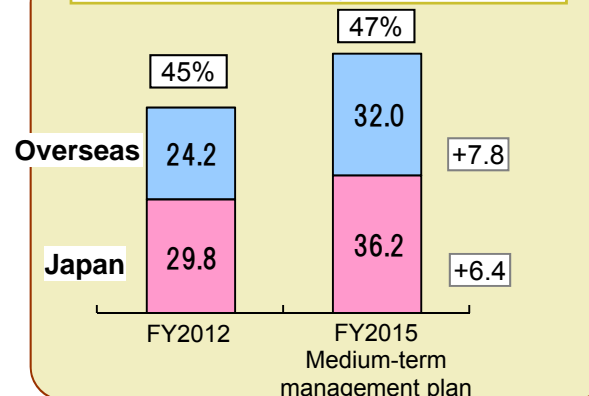
Transportation-use power electronics



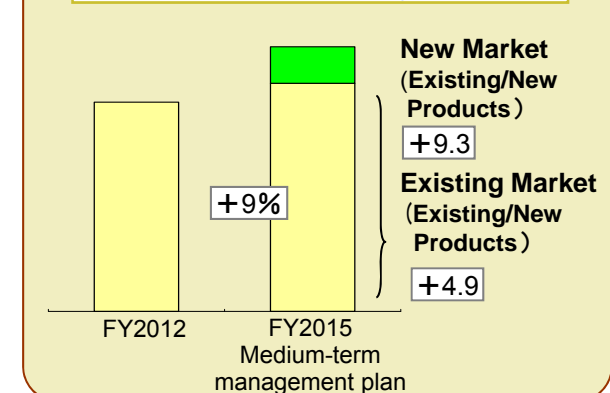
Net Sales (Billion yen)



Net Sales in Japan / Overseas (Billion yen)

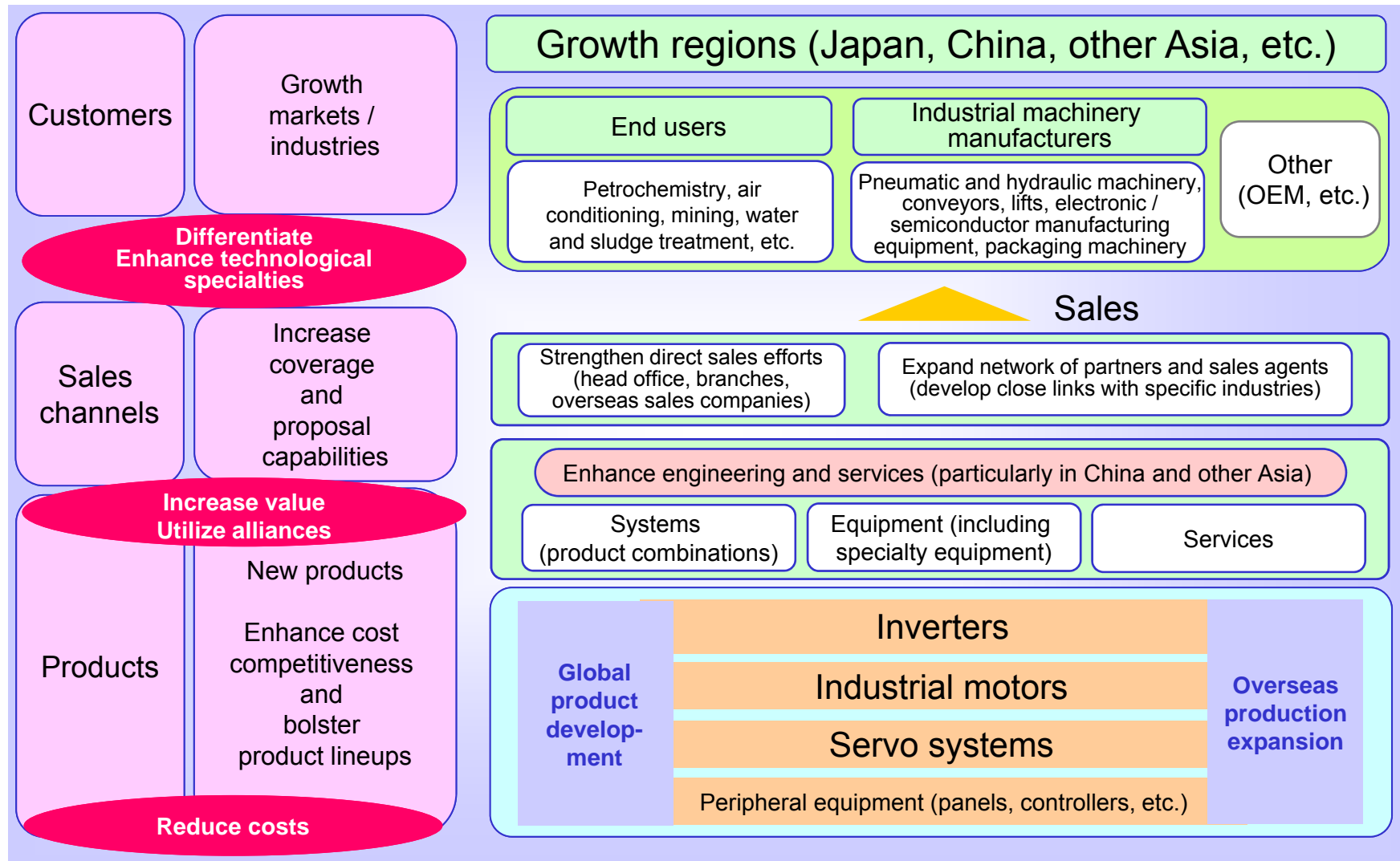


Net Sales by New / Existing Market (Billion yen)



Drive Priority Measures: Institute Industry-specific Measures for Industrial Drives

Strengthen direct sales and technical sales efforts, and institute industry-specific measures to increase sales in Japan and overseas
–Pursue integration of strategies for customers, sales channels, and products and prices–



Drive Priority Measures: Introduce New Products (Inverters)

Continually introduce new and one-of-a-kind products that respond to global needs

–General-purpose, specialty, performance, functionality, structure, and price–

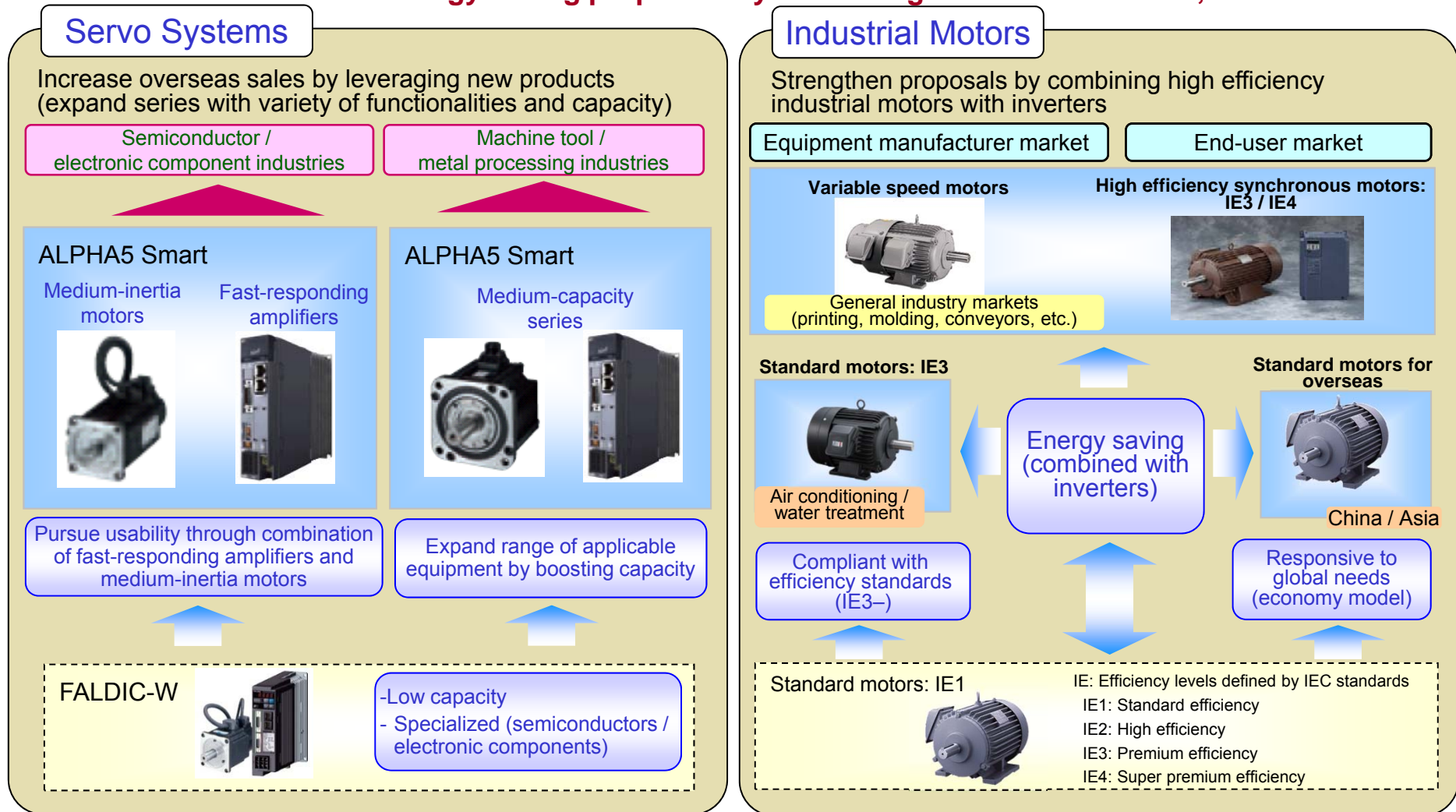


Drive Priority Measures:

Introduce New Products (Servo Systems / Industrial Motors)

Expand series (standard compliant / for overseas), and introduce new products

-Enhance energy saving proposals by combining PLCs and inverters, etc.-



Power Supply

Business Strategies / Priority Measures

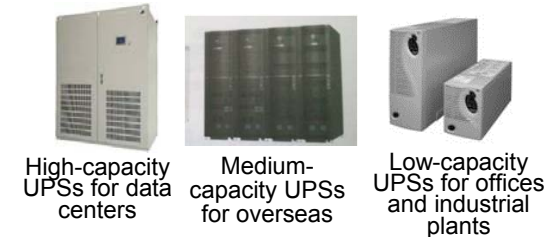
Business Strategies

- Expand global sales capturing medium- and large-capacity UPS markets
 - Japan: Need for more reliable UPSs for IT and financial industry, replacement demand
 - Overseas: Industrial sector in China and Asia, and market for company-owned data centers and data center operators (including Japanese companies)
 - Markets for DC power supplies for ICT equipment and office equipment
- Promote sales of PCSs for mega solar systems to respond to increased usage of renewable energy
- Reduce costs by expanding overseas procurement and production

Priority Measures

- Develop differentiated products with high efficiency and compatibility with overseas specifications, and advance operations with new products
- Increase overseas sales by strengthening technical proposal capabilities, engineering and services, and expanding sales agent network
- Develop operations in conjunction with spread of data centers (company-owned / operators) in Japan and overseas
- Expand overseas production at new Thailand factory and other sites, ensure price competitiveness through local design, local production, and local consumption

UPSs



Switching Power Supplies

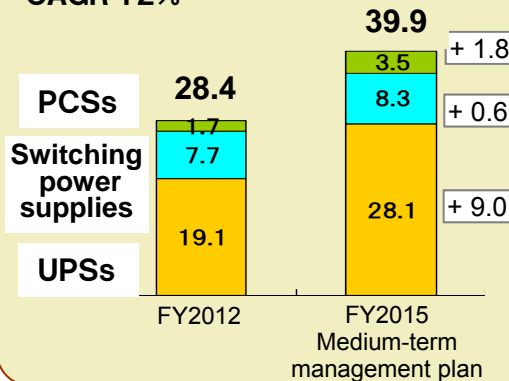


PCSs

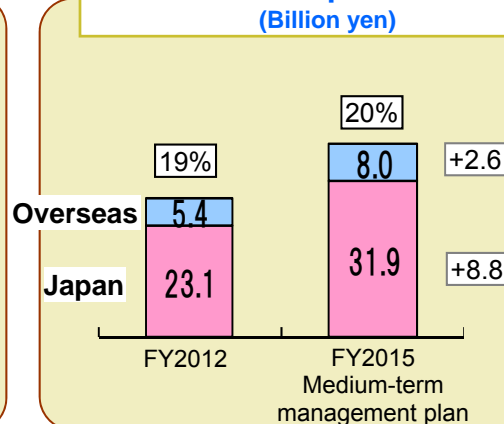


Net Sales (Billion yen)

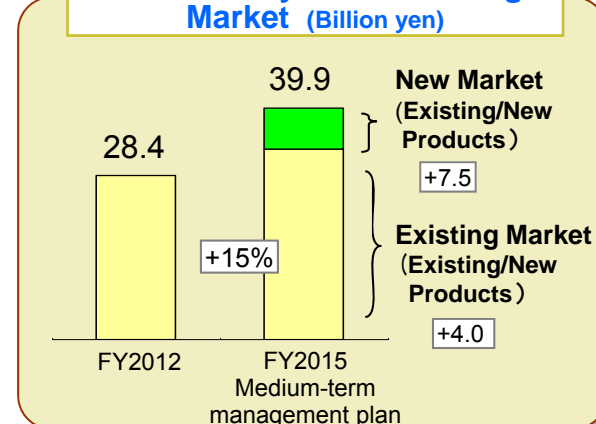
CAGR 12%



Net Sales in Japan / Overseas (Billion yen)



Net Sales by New / Existing Market (Billion yen)



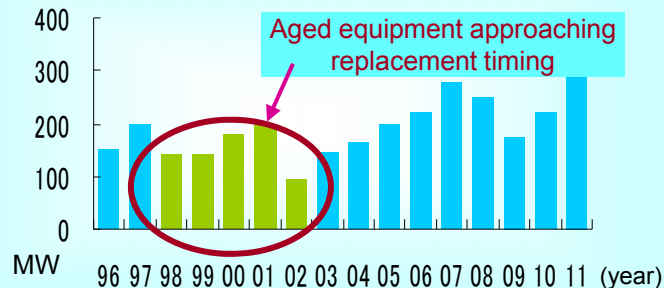
Power Supply Priority Measures: Expand Medium- and Large-Capacity UPS Operations

Increase sales in data center and industrial markets in Japan and Asia –Strengthen competitive products and overseas engineering and services–

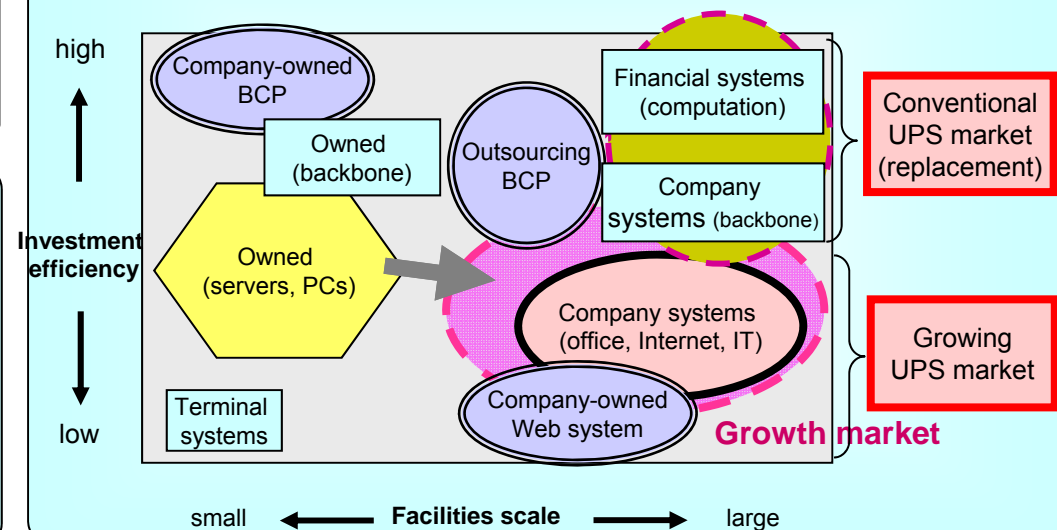
■ UPS Market

- Large scale and strong growth in market for UPSs for data centers
- Approximately 46% of global market, growth rate 7% CAGR
- Demand in Asia resulted from need for stabilization of electric power infrastructure

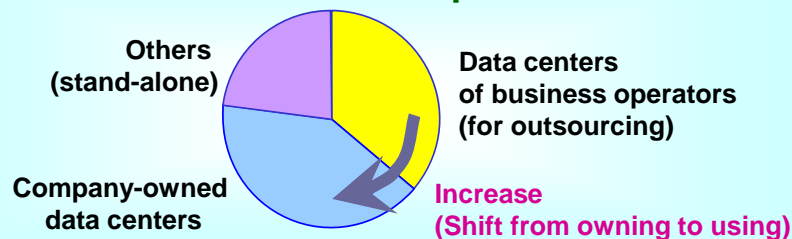
■ Domestic UPS Replacement Demand



■ Shift from Owning Data Centers (Company-owned) to Using Large-Scale Data Centers (Outsourcing)



■ Distribution of Servers in Japan



■ Strong Growth in Data Center Market

Fuji Electric's forecasts based on IMS figures

	Growth from 2012–2017
Global	114%
Japan	125%
China	127%
Asia	140%

Introduce new, price-competitive products into domestic and overseas markets based on technologies and quality established in Japan

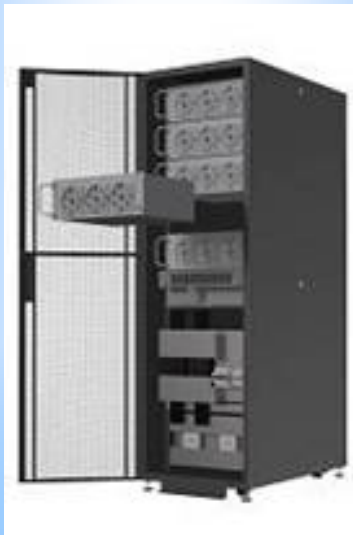
–Develop highly efficient products utilizing state-of-the-art power devices and high-efficiency power conversion technologies–

Medium-capacity UPSs

For overseas data centers
(20 – 200kVA)

7200BX Series (next-generation unit construction)

- High efficiency
- Capable of flexible provision with optimal capacity (in increments of 20kVA)
- High maintainability (module structure)
- Overseas specifications (3-phase 4-wire)



Large-capacity UPSs

For overseas financial institutions and data centers
(500kVA –)

7000HX-T4 Series (500kVA –)

- High efficiency
- Compatible with large-scale systems (500kVA x maximum 8 parallel)
- Configurable to high-reliability systems (parallel redundancy, standby redundancy)
- Overseas specifications (3-phase 4-wire)



Medium- and large-capacity UPSs

For domestic replacement demand

- Expand existing 6000 Series
- Strong track record
- High reliability and functionality
- Wide range of capacities
- Domestic specifications (3-phase 3-wire)



Expand series of highly efficient PCSs with domestic and overseas specifications

600V/1000V DC outdoor systems

(High efficiency products compliant with domestic and overseas standards)

- New IGBT models and new circuit topologies
- Max efficiency of 98.5% (1,000V DC products)
- Single unit capacity of 1,000kW
- Equipped with FRT* functions

* FRT (Fault Ride Through): Functions to continue operating, should grid failures occur



Received fiscal 2012 Agency for Natural Resources and Energy Director's Award for Superior Energy Conserving Machinery from the Japan Machinery Federation

1000V DC indoor systems

(High efficiency products for domestic market)

- New IGBT models and new circuit topologies
- Equipped with FRT* functions



Business Strategies

- Address demand for new electricity distribution systems, such as Direct Current (DC) distribution, used in the markets for renewable energy and energy saving
- Accelerate business development in China and other Asia
- Target facility replacement demand

Priority Measures

- Actively introduce new products for growth markets, such as DC equipment and power monitoring systems (Japan)
- Expand product series ranging from highly functional to economy models, and complete lineup of products for responding to diverse market needs (overseas)

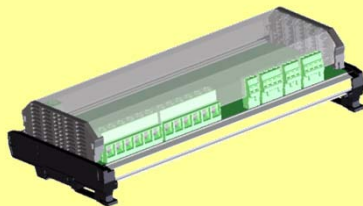
Actively introduce new products for growth markets, such as DC equipment and power monitoring systems

DC equipment and power monitoring systems for renewable energy power plants

DC products: 3P GT DC600V
High-voltage series (125 – 250AF)



DC string monitoring units for PV systems



Insulation monitoring units (Vigilohm)

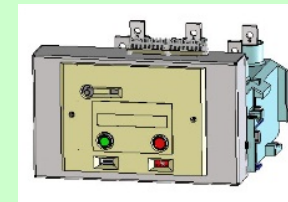


High-voltage equipment for replacement market

Multi-VCBs (fixed-type)



Multi-VCBs (Electronic switch-type)



Expand product series ranging from highly functional to economy models, and complete lineup of products for responding to diverse market needs

Lineup of Principal Models

Highly functional models:
High-end to middle-range

Economy models: Low-end

**Magnetic
contactors**

Thermal relays

SC Series



SK Series



FJ Series



**Molded case
circuit breakers**

BX Series



G-TWIN Series



BW0 Series



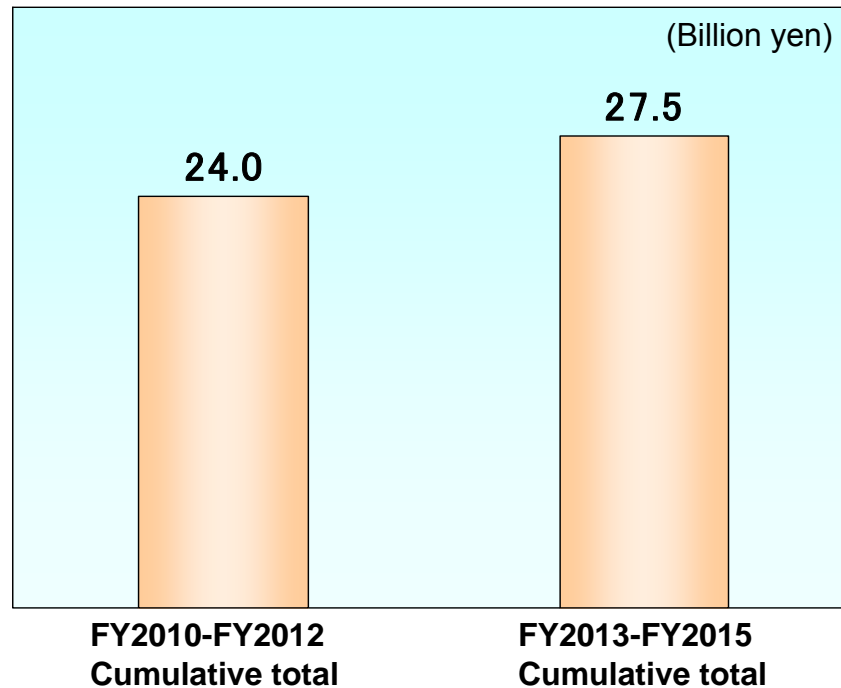
R&D Expenditures / Plant and Equipment Investment

Power Electronics

R&D Expenditures / Plant and Equipment Investment

- R&D expenditures: Increase expenditures to continue introducing new products
- Plant and equipment investment: Invest in expanding production by constructing new factory in Thailand, etc.

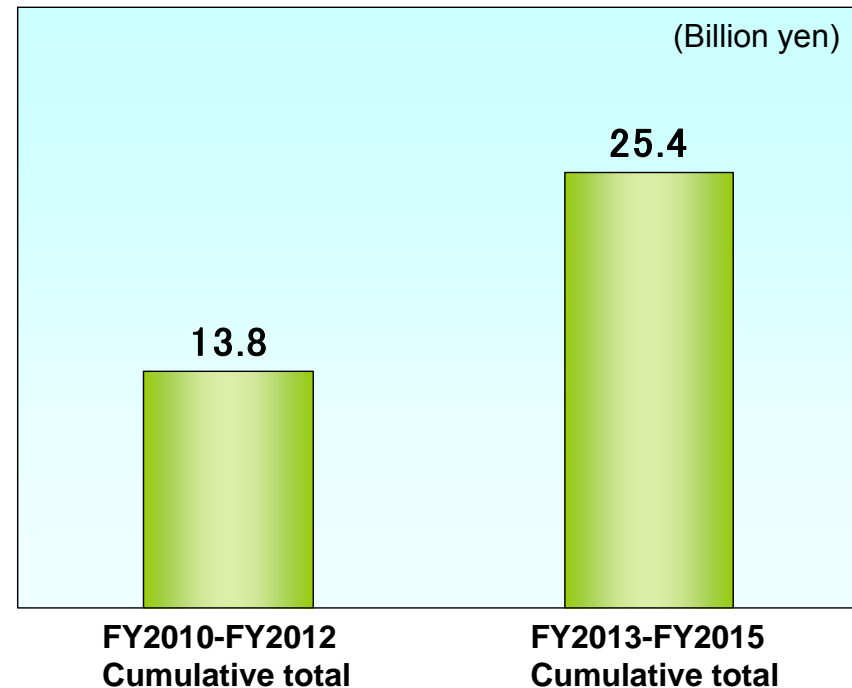
R&D Expenditures



Major themes for FY2013–2015

- Development of new products for the global market
- Development of products differentiated to have high efficiency, high functionality, etc.

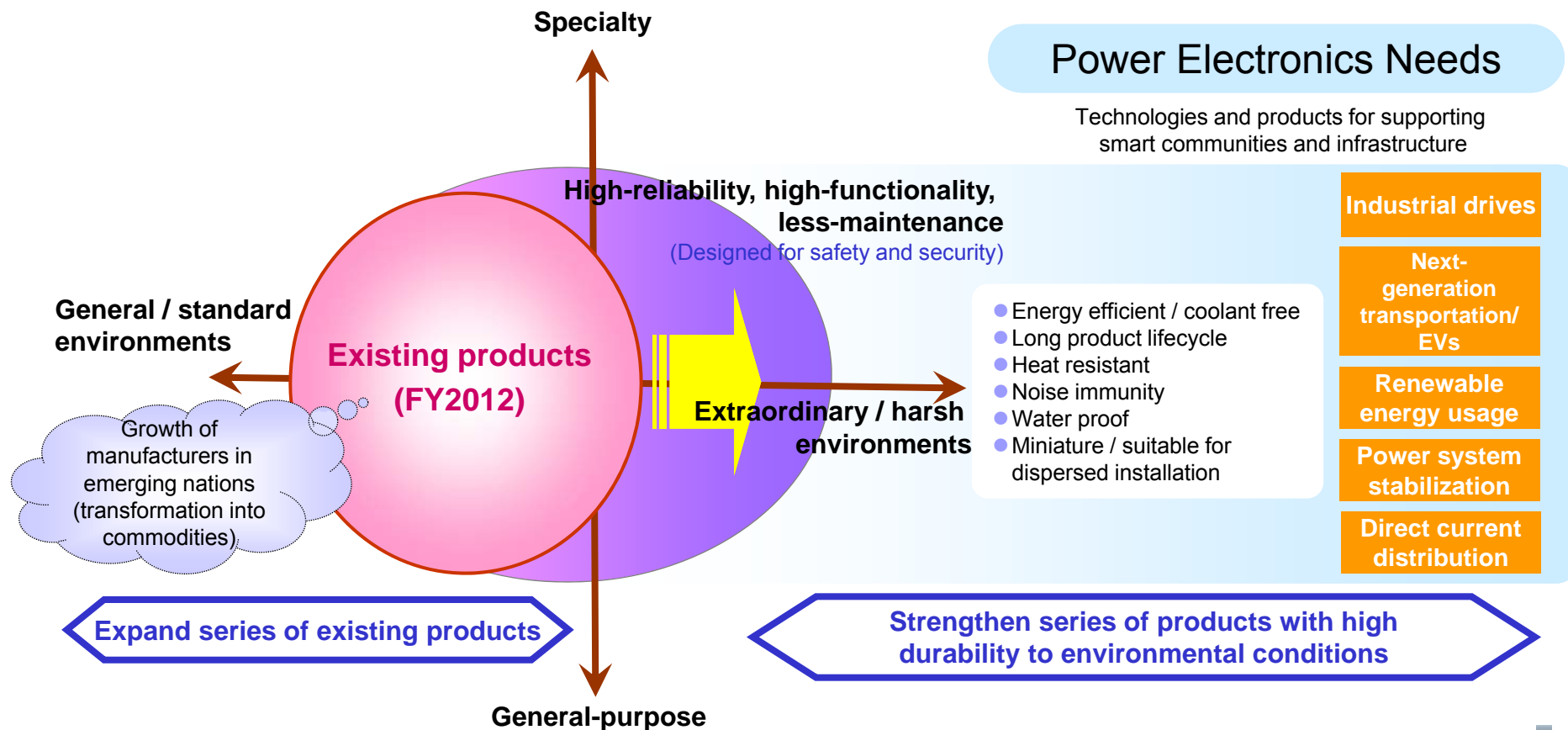
Plant and Equipment Investment



Major projects for FY2013–2015

- Construction of new factory in Thailand
- Investment in new products and automation

Expand products series for markets currently participated in, and accelerate commercialization of durable products series that can be used safely and securely even under harsh environmental conditions



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