MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow eco Changes

Mitsubishi Electric
Business Strategy of Power Systems

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Group President
Energy & Industrial Systems

MITSUBISHI ELECTRIC CORPORATION

1. Business Portfolio

Business Portfolio of Mitsubishi Electric

Energy & Electric Systems

- **Power Systems**
  Power generation systems,
  Transmission & distribution systems,
  Power distribution systems,
  Particle therapy systems, etc.
- **Transportation Systems**
  Inverters, main motors and
  air conditioning systems for railcars,
  Train Vision, Train control and
  management systems,
  Railcar operation management
  systems, etc.
- **Building Systems**
  Elevators, Escalators,
  Building management systems, etc.
- Public Systems
  Water treatment systems,
  Disaster prevention systems, etc.

Industrial Automation Systems

- **Factory Automation (FA) Systems**
  PLCs, AC servomotors,
  CNCs, Industrial robots,
  Laser processing machines, etc.
- **Automotive Equipment**
  Starters, Alternators, Car multimedia,
  Electric power steering, etc.

Information & Communication Systems

- **Space Systems**
  Satellites, Ground systems for satellite control, etc.
- Defense Systems
  Radar equipment, Antennas, etc.
- Communication Systems
  Optical, wireless and satellite communications systems, etc.
- Video Monitoring Systems
  Network cameras, Car Vision, etc.
- IT Solution

Electronic Devices

- **Power Devices**
  SiC modules, IGBT modules, etc.
- High Frequency and Optical Devices
  High frequency devices (GaN and GaAs), Optical devices, etc.
- TFT LCD Modules

Home Appliances

- **Air-Conditioning & Refrigeration Systems**
  Room and package air conditioners,
  Multiple AC units for buildings,
  Lossnay ventilation systems, etc.
- Housing Equipment
  Smart appliances, Lighting, HEMS, etc.
- Kitchen and Other Household Appliances

*PLC: Programmable Logic Controller, CNC: Computerized Numerical Controller, IGBT: Insulated Gate Bipolar Transistor, GaN: Gallium Nitride, GaAs: Gallium Arsenide, HEMS: Home Energy Management System

1. Business Portfolio

Energy & Electric Systems

Power Systems
Power generation systems,
Transmission & distribution systems,
Power distribution systems,
Particle therapy systems, etc.

Transportation Systems
Inverters, main motors and air conditioning systems for railcars, Train Vision, Train control and management systems, Railcar operation management systems, etc.

Building Systems
Elevators, Escalators,
Building management systems, etc.

Public Systems
Water treatment systems,
Disaster prevention systems, etc.

Introduced many ground breaking products, leading industries since its establishment

1924 produced 2,300kVA vertical shaft water turbine generators

1968 produced the first Gas Insulated Switchgear (GIS) in Japan

1991 supplied the first Static Synchronous Compensator (STATCOM) in the world

1996 developed 51,300kW DC generator (World record)

2010 started operation of in-house test facilities for Smart grid, Smart community

2016 started building in-house test facilities for High Voltage DC transmission (HVDC)

etc.

2. Business overview

Energy & Industrial Systems Group

Providing / advancing / enhancing electric infrastructure to promote an active and socially responsible society.

Our Customers

◆Electric Utilities (Domestic/Overseas)
◆Others (New Power Producer, Hospital etc.)

Our business

Products and system development / manufacturing / sales / engineering for customers in energy markets

Supply equipment / systems in each area,
“Power generation” ➔ “Transmission” ➔ “Distribution”

Thermal, Hydro, Nuclear, Photo Voltaic etc.

Substation, Load dispatching / control systems

Factory, Building, Home etc.

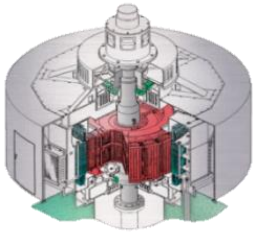
2. Business overview
(Business category / product line-up)

Power generation systems (Thermal / Nuclear / Hydro)

Committed to environmental emissions reductions and efficient energy use

Turbine Generator

Total advanced digital I&C system for Nuclear power plant

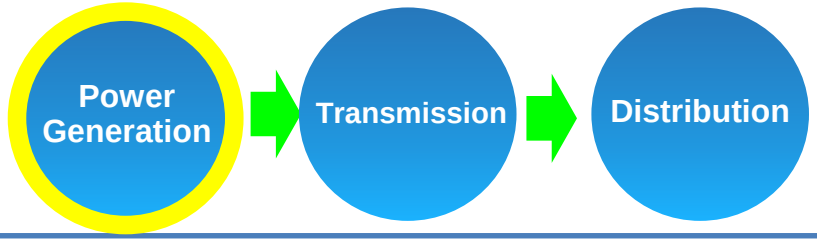


Water turbine generator

I&C system for thermal power plant

Radiation detector

I&C system for Hydro power plant



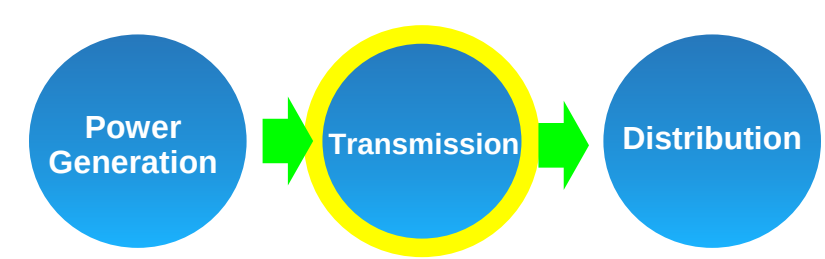
2. Business overview
(Business category / product line-up)

Transmission & Distribution Systems

high quality and efficient power supply

Switchgear

Power Transformer



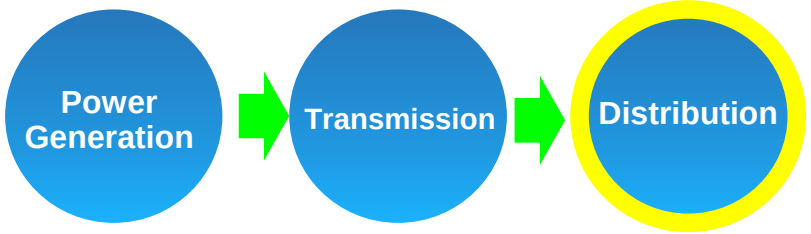
Power distribution systems

distribute electric power safely and certainly to all users

Vacuum circuit Breaker

Substation Administrative System

Cubicle-type Gas Insulated Switchgear (C-GIS)



2. Business overview
(Business category / products line-up)

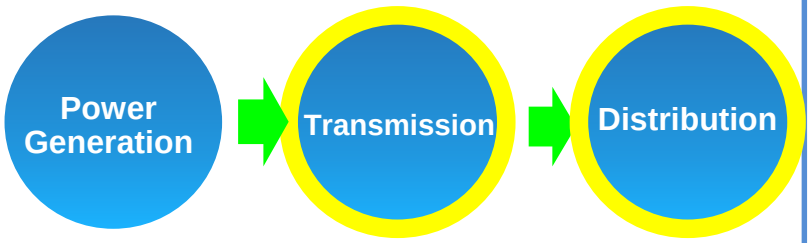
Power Electronics Systems

Meeting market needs(FACTS[*1],HVDC[*2]) from increased renewable energy integration

※1 Flexible AC Transmission System

※2 High Voltage Direct Current

Static Var Compensator



T&D ICT[*] Systems

Support smart and efficient operations of electric power market with keeping grid reliability and stability

Protection relay

BLEnDer®

Package Software for Power ICT system

Smart meters

Load dispatching system

Energy storage system

*Information and Communication Technology

2. Business overview
(Business category / products line-up)

Medical system / Superconductivity system

Expand medical business and superconductor business using newly developed technologies such as analyzing technology for electromagnetic fields, and new manufacturing technology for electromagnets

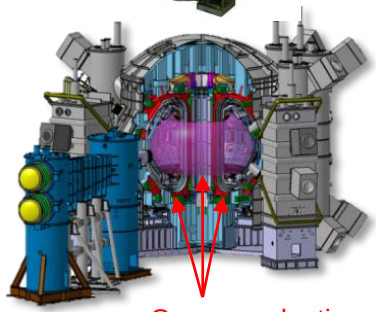
Developed Technologies for the Energy Systems Business
- Analyzing Technology for electromagnetic fields
- Manufacturing technology for electromagnets

Accelerator

X-ray Technology for medical

Particle therapy system

Superconducting magnet for MRI*



Superconductive coils for R&D systems of nuclear fusion

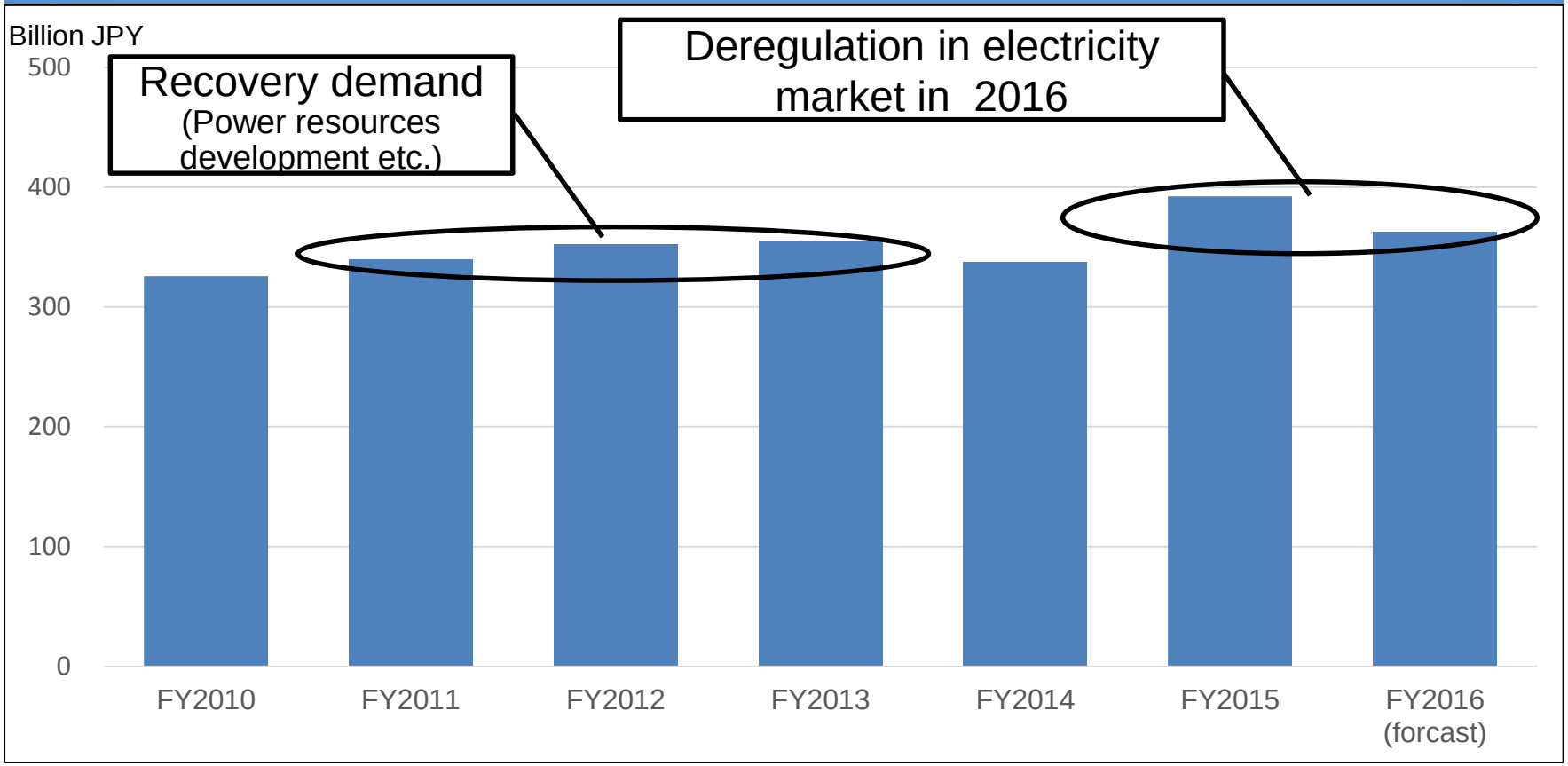
*Magnetic Resonance Imaging

Illustration : National Institutes for Quantum and Radiological Science and Technology

3. Sales trends

- **Under demand growth situation due to recovery demand after the great east Japan earthquake in 2011 and demand for deregulation in electricity market in 2016, consolidated sales volume was stable around 330 ~ 350 billion JPY.**

Consolidated sales (Actual / forecast)



4. Business strategy

Corporate Management Policy

~Maintain balanced corporate management for sustainable growth ~

~Toward a Higher Level of Growth~

Growth

- Accelerate growth of strong business
- Further global expansion
- Create new strong business
- Reinforce the solutions business

Profitability Efficiency

- Enhance capital efficiency
- Create a stronger business foundation

Soundness

- Constantly review and refresh business portfolio
- Maintain sound financial standing
- Promote thorough Ethics and Compliance and CSR initiatives

Growth target to be achieved by FY2020

- Net sales: 5 trillion JPY or more
- OPM: 8% or more

Group Management Policy

Challenge to the innovation targeting to be a global top player in Power Systems Business

~ take the next "STEP" ~

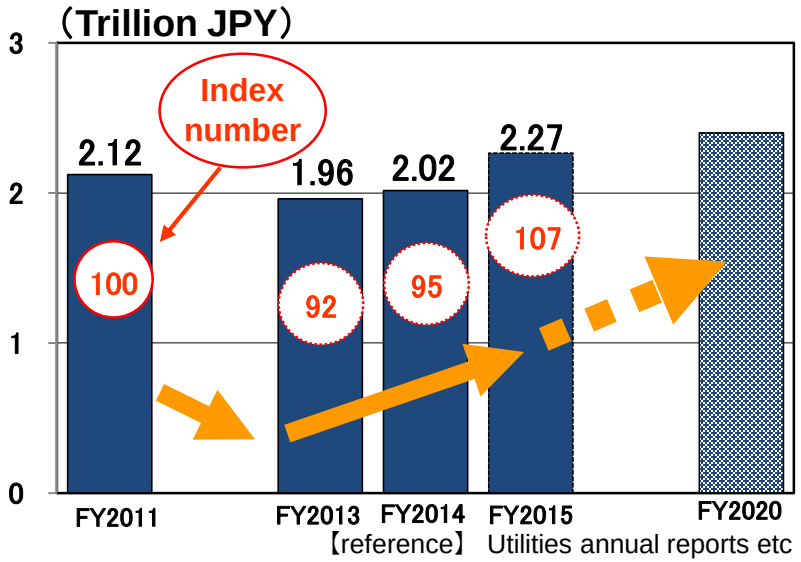
Strategy, Technology, Efficiency, Priority

Growth target in FY2020

- Net sales: 470 billion JPY or more
- OPM: 8% or more

5. Business environment (Domestic)

Capital investment trend of Japanese domestic utilities



- Until FY2013 capital investment was following a downward trend
- Capital investment is recovering due to additional power resources deployment (mainly thermal); nuclear power plants remain under a long- term outage situation
- Expect steady growth of capital investment until FY2020

Steps in the electricity system reform

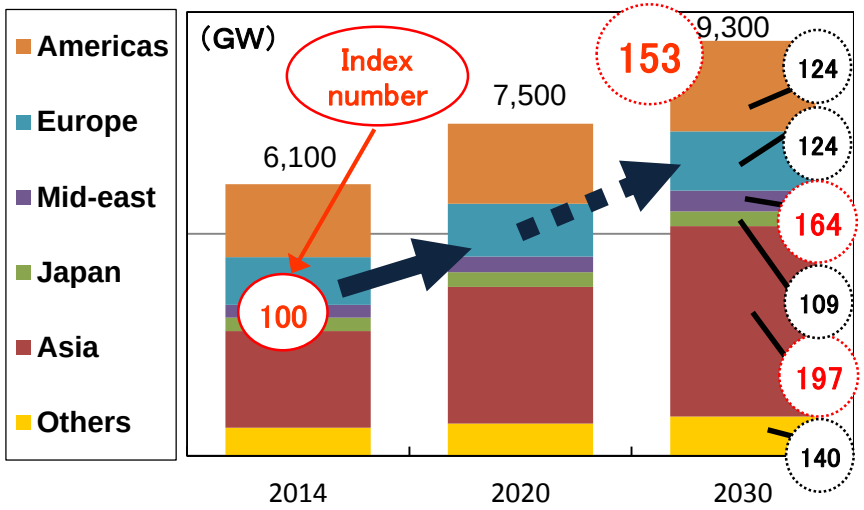
Schedule of reform	
FY2015	Found OCCTO*
FY2016	Deregulation in electricity market (incl. retail sector)
FY2017	Establish “Negawatt Power” trading market
～	Enhance trading menu
FY2020	Unbundling

- By 2020, Utilities will be split into three categories: generation, T&D, and retail. Trading will be enhanced to closer match true market needs of supply and demand.
- Expect demand growth of “ICT System solution business” (incl. division / integration / modification of existing daily operation system in Utilities)

*Organization for Cross-regional Coordination of Transmission Operators , Japan

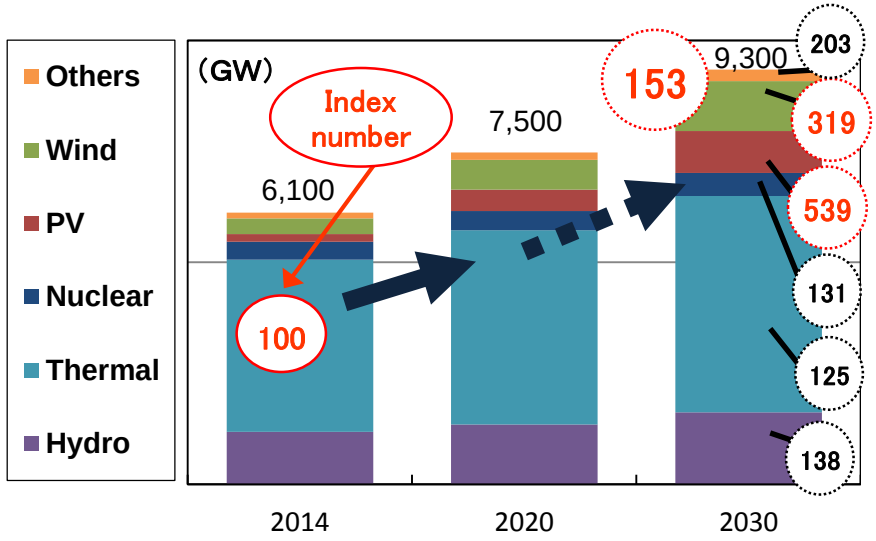
5. Business environment (Global)

Electrical Capacity (Area)



- Expanding global electrical generating capacity mainly in Asia and Mid east
- Expect demand growth in T&D sectors corresponding to the capacity expansion

Electrical Capacity (Sources)



- Showing steady growth in Thermal, Hydro, and Nuclear
- Expanding renewable energy sources such as PV and Wind
- Grid stabilization requirements after the expansion of unstable renewable energy sources

【reference】 IEA World Energy Outlook 2016

6. Growth strategy

Market

- Realize Grid stabilization needs after the expansion of unstable renewable energy
- Expect demand growth of "ICT System solution business" as part of unbundling efforts until FY2020
- Global demand for Power generation, T&D, and Power Distribution equipment
- Expect significant electricity demand growth in overseas markets compared to domestic

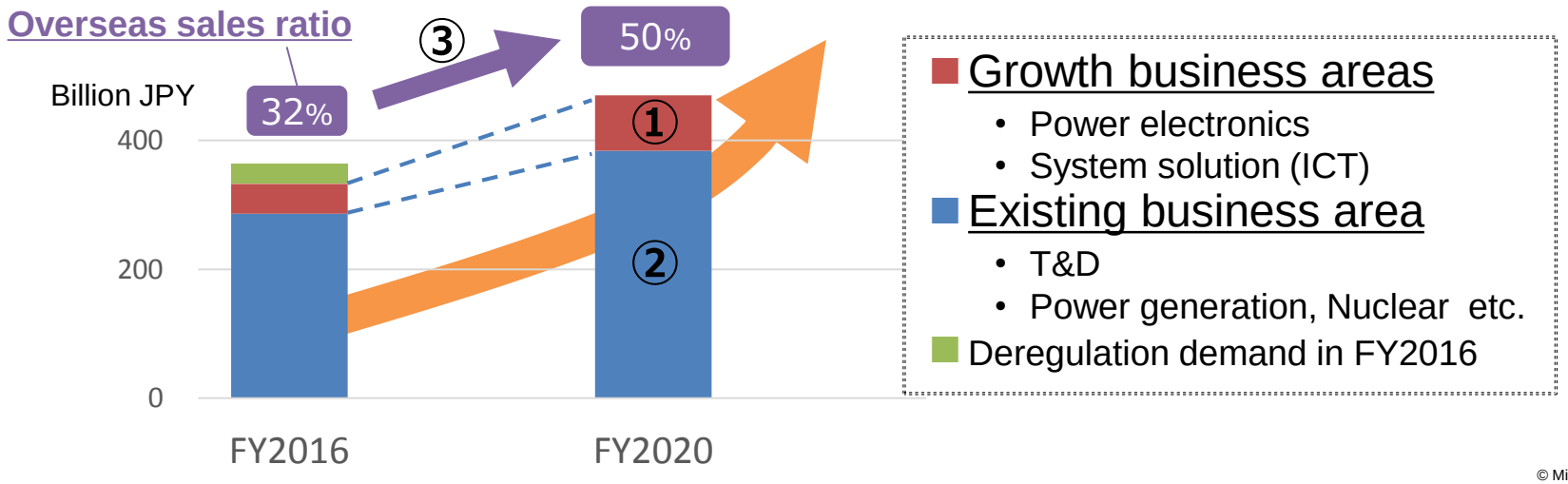
Approach to target in FY2020

① **Progress in growth business areas**
- Power electronics business
- ICT business

② **Maintain and expand existing business areas**
- Strengthen After-sales business
- Strengthen product competitiveness (T&D / Power generation / Nuclear etc.)

③ **Accelerate globalization**

Business Plan (consolidated basis)



6. Growth strategy

① Progress in growth business areas

6. Growth strategy ①Progress in growth business areas

Power Electronics

Market trend and subjects / needs

Global (incl. Japan)

◆ **Expanding renewable energy sources such as PV and Wind.**

- Expansion of renewable energy such as PV / Wind
  ➔can cause unstable situations of the AC power grid
- Expanding power sources far from load centers such as off-shore wind farms
  ➔increase HVDC transmission needs which cause lower losses than AC transmission

Domestic

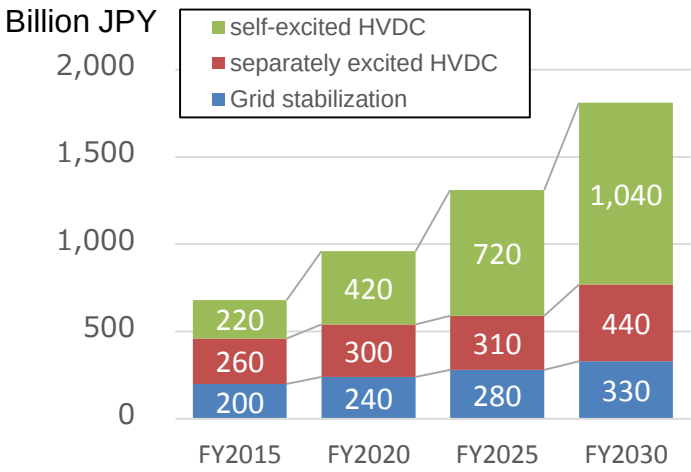
◆ **Progress of electricity system reform**

- Strengthen cross-border grid activity
  (Facilities enhancement and review operation)

Business opportunities

◆ **Rapid market expansion of power electronics**

expect rapid market expansion of self-excited HVDC business



◆ **Actualization in domestic market**

- frequency converter station project
- cross-region grid project

6. Growth strategy ①Progress in growth business areas

Power Electronics

Our Strengths

■ **Supply record & experience**

- ◆ Power system analysis technology covering initial system planning to actual detailed design
- ◆ 30 year supply record of grid stabilizing system equipment (Top 3 supplier in US)

■ **Gain differentiated technology by development and investment**

Investing 6 billion JPY during FY2012 ~ 2018

■ **Comprehensive technology**

- Development of key devices “large capacity power semiconductors”
- Capabilities for full-turn-key projects (electric / I&C, installation)

▽2010 ▽2015

Power systems analysis technology

Simulator for power systems analysis (hybrid, full-digital simulator)

Supply power electronics systems (FACTS)

US : 24 projects
Mid-east : 2 projects
Domestic : 7 projects

SVC in US

Development of self-excited SVC-Diamond ®

Development of self-excited HVDC-Diamond ®

Building HVDC scale model verification facilities (2018 start operation)

Power semiconductors

6. Growth strategy ①Progress in growth business areas

Power Electronics

Visions

FACTS (SVC, STATCOM)

- Expand from existing business markets (US, Mid-east, Domestic) into developing markets (EU, South-east Asia etc.)

→ **FY2020 target sales**
10 billion JPY sales or more per year *

*internal investigation

DC transmission related system (HVDC etc.)

- Gain orders using HVDC scale model verification facilities & demonstrator
  Target markets : US, EU, and Domestic

→ **Target order volume by FY2020**
50 billion JPY in total

- Develop a high quality, competitively priced DC circuit breaker for use in future multi-terminal HVDC systems expected starting 2025～2030 in Europe.

→ **Be a global top player in 2020s**

6. Growth strategy ①Progress in growth business areas

ICT business

Market trends and subjects / needs	Business opportunities

Domestic

◆ Progress of the electricity system reform

Improvement in power exchange markets
FY2019 baseload power exchange market
FY2020 real-time exchange market etc.

→ **◆ System business for power exchange**
New system business for new markets improving the power exchange markets

Tough competition in power generation retail business

→ **◆ New system business for players in a tough competitive field**
Power supply and demand control system (system for balancing) for supporting the most economical operation using planning functions for power exchange

Cost reductions required in regulated T&D fields

→ **◆ Advanced system business for T&D sectors**
Asset management system using online condition monitoring for aging facilities based IoT*1 technology

◆ Expansion of renewable energy

・Unstable PV and wind farms
(2015 new regulation for output power)

→ **◆ Smart grid related business**
Energy storage control system boosting expansion of renewable energy

expect 1 trillion JPY market in 5 years from FY2016 to FY2020

*1 : Internet of Things

6. Growth strategy ①Progress in growth business areas

ICT business

Our Strengths

■ Technology and Know-how developed in-house and demonstrated in collaboration with power utilities

- ✓Advanced verification test since 2000
- ✓Accelerated technology development using in-house verification faciliting since 2010

■ Know-how andexperience in deregulated markets

- ✓ installed Japan Electric Power Exchange system in FY2005
- ✓ installed infrastructure system for deregulated market

■ Advanced technology

- ◆ **Grid control** (Automatic distribution system, power system control)
- ◆ **ICT** (power system operation system, wireless communication system etc.)
- ◆ **Monitoring** (sensors etc.)
- ◆ **Security technology** (encryption technology etc.)

▽2005 ▽2010 ▽2015

In-house demonstration (FY2010～FY2015)

<System example>

- ✓ FY2012~FY2014 demonstration experiment with Kyushu Electric in Iki islands
- ✓ FY2014~FY2017 demonstration experiment of hybrid battery system with Chugoku Electric in Oki islands

◆ FY2005 installed Japan Electric Power Exchange system

◆ 2001 Start supply Packaged Soft-ware “BLEnDer”

★High share in deregulated market

System / Meters	Share
Wheeling system	5/9 utilities
Smart meters (communication unit)	5/10 utilities
Smart meters (meter)	around 35% (in FY2014)

Grid Control
2005 Power supply control system for Kansai electric

ICT
2011 Plant engineering facilities management system for Chubu Electric etc.

Monitoring
On-line condition monitoring for generators, Transformers, Switchgear

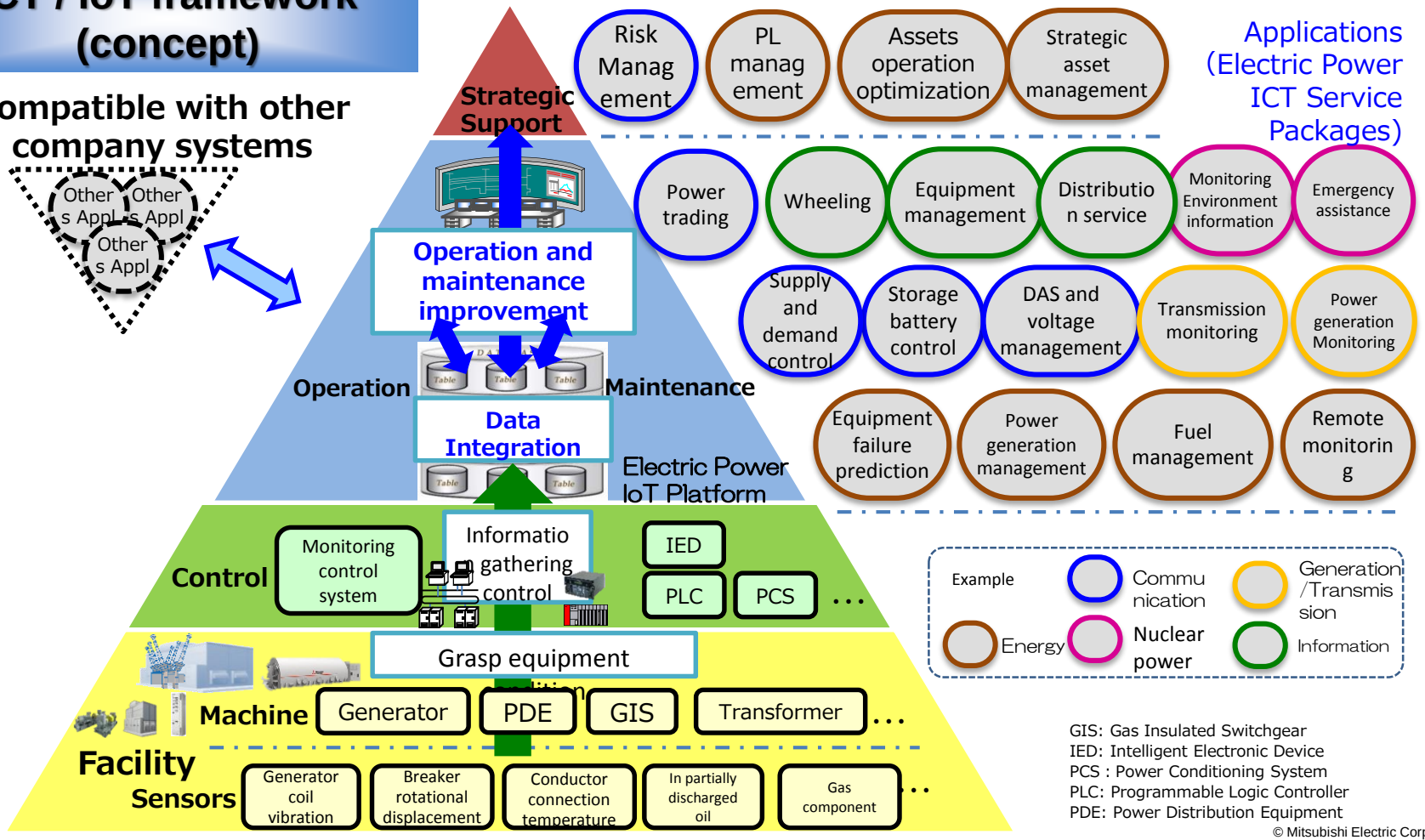
★FY2016
Established Power systems ICT center
aggregated resources at 1 location in Yokohama
⇒accelerate merging technologies, Control + ICT + Monitoring

6. Growth strategy ①Progress in growth business areas

ICT business

- Build ICT / IoT framework utilizing sensor / control / communication technology
- Accelerate development of applications for market needs such as facilities operation, maintenance management (asset management), and power exchanges.

ICT / IoT framework (concept)



GIS: Gas Insulated Switchgear
IED: Intelligent Electronic Device
PCS : Power Conditioning System
PLC: Programmable Logic Controller
PDE: Power Distribution Equipment

6. Growth strategy ①Progress in growth business areas

ICT business

Visions

Domestic ICT business (~FY2020)

- Prior to investment pick up the latest regulations and needs in domestic market

→ **FY2016~2020, Gain Target market share: 30% in 1 trillion JPY market**

Accelerate globalization of ICT business

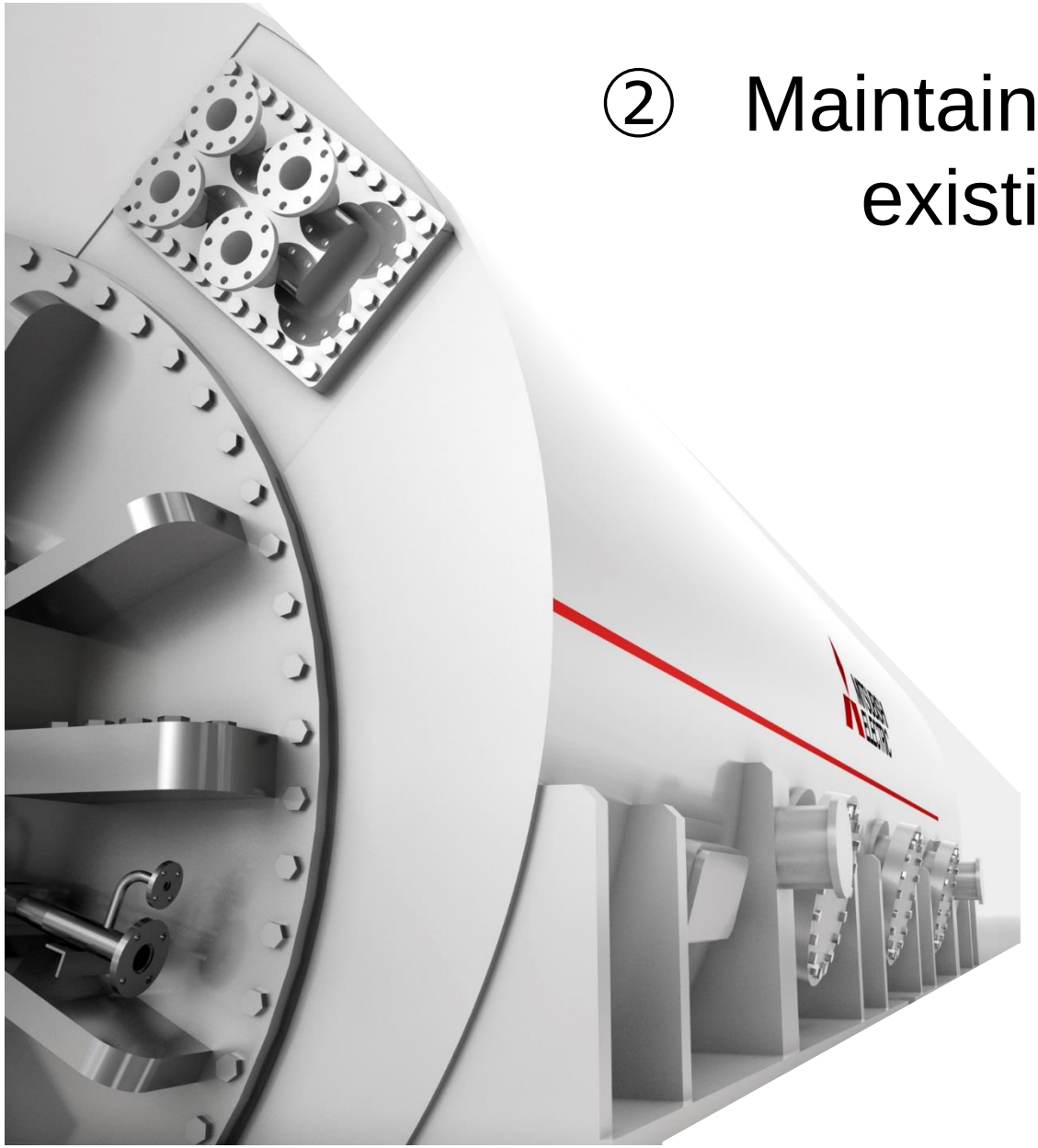
- Advance marketing activities for energy storage control systems in overseas markets where there is expanding renewable energy use

→ **1st Target market : US**
➔ Expand in surrounding area

- Propose our smart meter systems to countries developing smart meter infrastructure

→ **1st Target market : South-east Asia**
➔ Expand in surrounding area

6. Growth strategy



② Maintain and expand existing business areas

6 .Growth strategy
② Maintain / expand existing business areas

Market trend and subjects / needs

- **Demand growth for equipment replacements needed to improve energy supply stabilization and efficiency**
  - Aging equipment
    [in Power generation/ T&D/ Power Distribution field]
  - New replacements needed to improve efficiency and reduce CO_2
    [in Power generation field]
- **Demand growth for electricity infrastructure equipment**
  - Particularly in developing countries, demand for new power systems has been expanding, synchronized with the demand for increasing electric generating capacity
    [in Power generation/ T&D / Power distribution field]
- **Tough competition in global markets**
  - Rise of Chinese / Korean competitors
  - Foreign competitors are entering into the domestic market
- **Customer needs**
  - High quality, low environmental impact (incl. high efficiency), compact, short delivery period, etc.

Business opportunities

- **Expand after-sales business opportunities**
  - Provided many products after expanding global businesses in the 1960s
  - Equipment installed before 1970s will come up for repair or replacement
    (Turbine Generator, Transformer , Switchgear etc.)
- **Expanding opportunities by differentiation and by meeting customer needs**
  - Even in tough competition, there are customers who evaluate our product's "high quality" and "high performance"
  - Differentiate by supplying new technology and products which meet customer needs

6 .Growth strategy
② Maintain / expand existing business areas

Expand After-sales business（Turbine Generator）

Turbine Generator for After-sales business

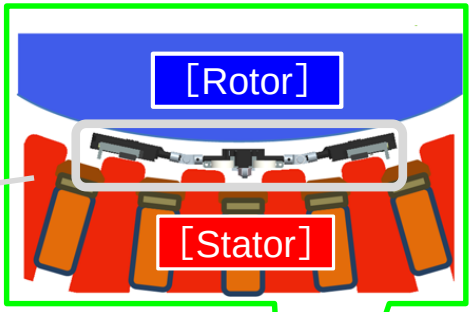
- Our supply record : 2,100 units.
- Target : 1,000 units or more that need rewinding due to deterioration

	units
Target for After-sales business	About 1,000 (Japan: 500,Overseas:500)
Total units	About 2,100 (Japan:1,100,Overseas:1,000)

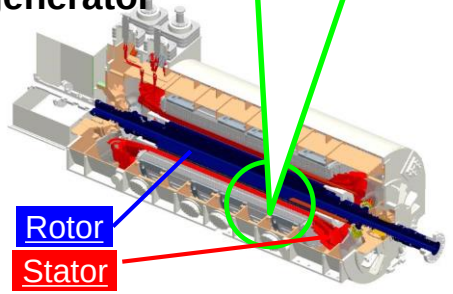
Ultra-thin Robot for Power Generator Inspection

Strong point
1. Because of a thin 19.9-millmeter, it is capable of inspecting Mitsubishi Electric mid-and large-sized generator.
2. Because of original vibration analysis technology, the robot is able to accurately detect the stator wedge tightness in detail.

Close-up view of generator



Wide view of generator



Customer needs

- shortened outage period
- Improved efficiency and ratings by replacement
- Minimize the cost for condition based monitoring and investment

Our proposal

- Inspection without removing the rotor using special robots
- Apply the latest technologies to improve efficiency (low loss bearing, high efficient fans, high performance insulation)
- On-line monitoring system for partial discharge, anomaly detection, and analysis of remaining equipment life

6 .Growth strategy
② Maintain / expand existing business areas

Expand After-sales business（Power Transformer, GIS）

Power Transformer for After-sales business

- Our supply record : 9,400 units.
- Target : about 6,000 units or more aged equipment to be replaced.

	units
Target for After-sales business	About 6,000 (Japan: 1,500,Overseas:4,500)
Total units	About 9,400 (Japan:1,900,Overseas:7,500)

GIS for After-sales business

- Supply record : 12,000 units
- Target : about 3,600 units or more aged equipment to be replaced

	units
Target for After-sales business	About 3,600 (Japan: 1,900,Overseas:1,700)
Total units	About 12,000 (Japan:6,500,Overseas:5,500)

Customer needs

- Shorten outage period
- Condition based monitoring and optimized timing for replacement

Our proposal

- Shorten site work by partial replacement, reuse foundation, and expand full assembly transportation
- On-line system for partial discharge to diagnose insulation performance

sensor for partial discharge

6 .Growth strategy
② Maintain / expand existing business areas

Strengthen products competitiveness

◆ Maintain and expand new equipment business by supplying new products which match customer needs.

Customer needs	Example of products
■ Turbine Generator ◆ High efficiency ◆ Compact to reduce investment	High-efficient turbine generator “VP-X series” 
■ Power Transformer ◆ EX: Installed in a densely populated urban area underground for safety	Power Transformer (Gas insulated) 
■ Switchgear ◆ Increased demand for compact switchgear due to difficulties to secure space in developing countries ◆ Easy maintenance and operation	420kV single break GIS 
◆ Designed specifically for off-shore wind firms (Compact, easy maintenance.)	C-GIS for off-shore wind firm 

6 .Growth strategy
② Maintain / expand existing business areas

Strengthen products competitiveness

◆High-efficient turbine generator "VP-X series"

Strengths

1. Indirect hydrogen cooling for stator conductors in the 900MVA class turbine generators (World's-first)
2. Extra-high efficiency rating of 99%.
3. Compact (20% smaller than conventional indirectly hydrogen-cooled generators)
4. Shorten delivery time by new parallel manufacturing methods for the stator core and stator frame

Future activities

✓ Proceed with differentiation marketing activities

◆Power Transformer(Gas insulation)

Strengths

1. Non-flammable and explosion-proof to ensure safety in densely populated areas and in underground applications
2. Reduced total life-cycle costs due to space-saving specifications and easy maintenance

Future activities

✓ Marketing activities focused for densely populated urban areas and the like

6 .Growth strategy
② Maintain / expand existing business areas

Strengthen products competitiveness

◆ 420kV single break GIS

Strengths

* Our research in 2016

1. World's smallest* 420kV class GIS (cf. 30% of existing model)
   Reduced footprint for substations and shortened installation period
2. Easy maintenance and improved operability.
   Reduce the number of breaking chamber and centralize operation panels in the front

Future activities

- ✓ Acquire the high demand markets, mainly in Mid-east area
- ✓ Gain above 10% share in target markets, mainly Mid-east area

◆ C-GIS for Offshore wind firm

Strengths

1. Compact due to three-phase structure
   can be installed within the space in the wind turbine
2. Easy maintenance
   Features solenoid vacuum circuit breakers which reduce mechanical wear

Future activities

- ✓ Market to off-shore wind firms, mainly in Europe

6 .Growth strategy
② Maintain / expand existing business areas

◆ Increase sales volume and profit through new business models with newly applied technology

Power generation systems (Thermal / Nuclear)

◆ **Participate electricity supply business (invest to SPC)**[*1]

◆ **Develop new domestic business in Nuclear back-end field in Japan**

(1) Increase sales of electric equipment and I&C system for nuclear fuel cycle field at Rokkasyo

(2) enter into Intermediate storage and decommissioning field with radiation monitoring technology

◆ **Participate the development of SMR[*2] in US**

Medical systems / Superconductive system

◆ **Expand global business in particle therapy field**

◆ **Develop high functionality and invest in a mass-production line for Super conducting magnet for MRI**

◆ **Join the ITER[*3] and JT-60SA[*4] projects**

*1 : Special Purpose Company *2 : Small Modular Reactor *3 : International Thermonuclear Experimental Reactor *4 : JT-60 Super Advanced

6 .Growth strategy

③Accelerate Globalization

6 .Growth strategy ③Accelerate Globalization

Business opportunities

✓ Significant generation capacity growth overseas compared to domestic markets

◆Generation Capacity(GW)

	①FY2014	②FY2030	variance(②－①)	ratio(②／①)
Domestic	300 GW	330 GW	＋30 GW	110%
Overseas	5,800 GW	9,000 GW	＋3,200 GW	155%

【reference】IEA World Energy Outlook 2016

✓ Expansion of renewable energy sources such as PV and Wind in Europe and USA

✓ Realize grid stabilization needs for the integration of renewable energy

◆Electrical generation(TWh) shares of PV and Wind

		①FY2014	②FY2030
Domestic		2.9%	9.4%
Overseas		3.8%	12.3%
	Europe	9.7%	22.5%
	USA	4.5%	14.3%

【reference】IEA World Energy Outlook 2016

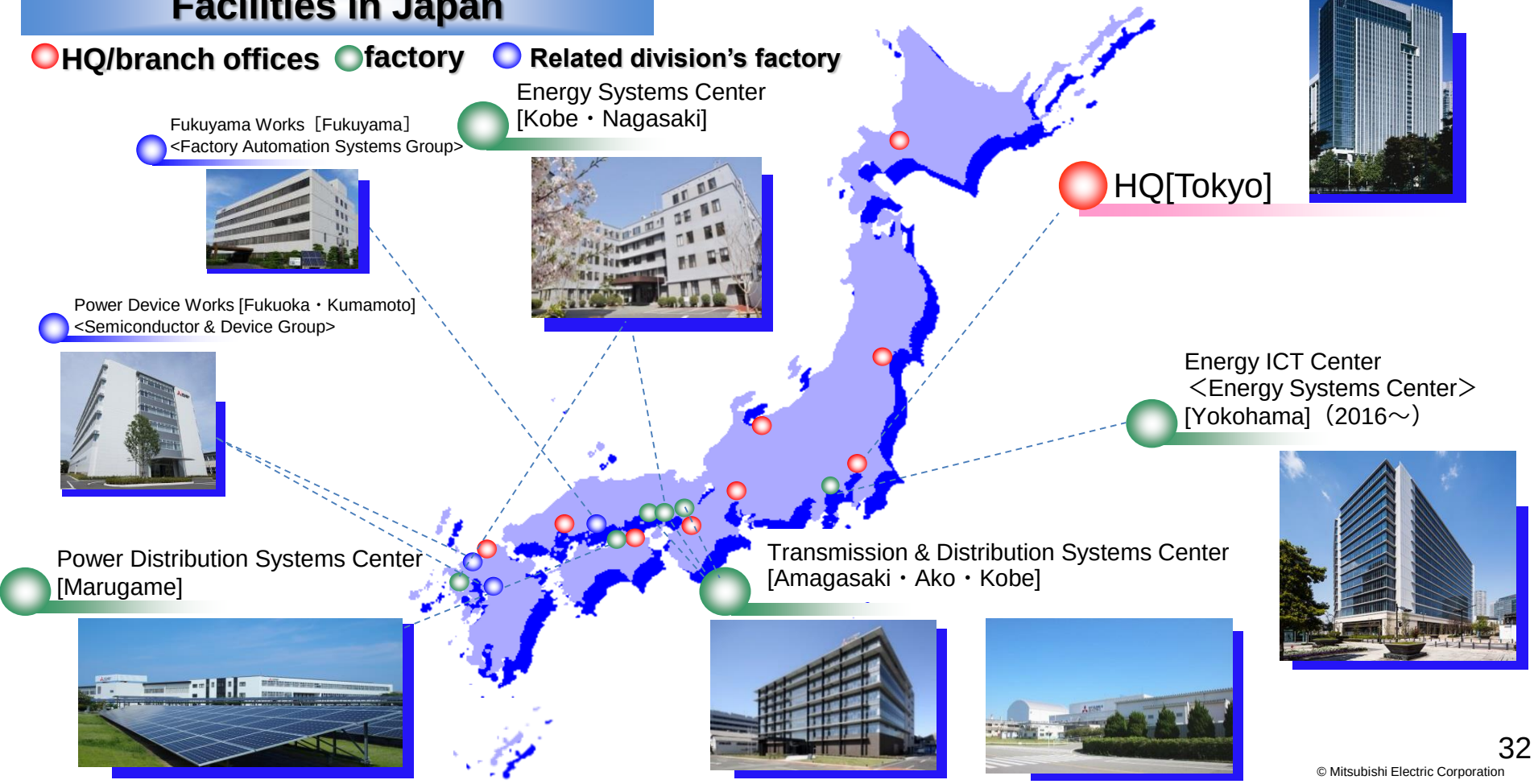
6 .Growth strategy ③Accelerate Globalization

Global facilities (Japanese base)

- ✓ Develop advanced technologies in Japanese factories
- ✓ Support overseas facilities from Japanese factories as “mother factory”
- ✓ Provide service to domestic customers from HQ and regional offices

Facilities in Japan

HQ/branch offices　factory　Related division’s factory



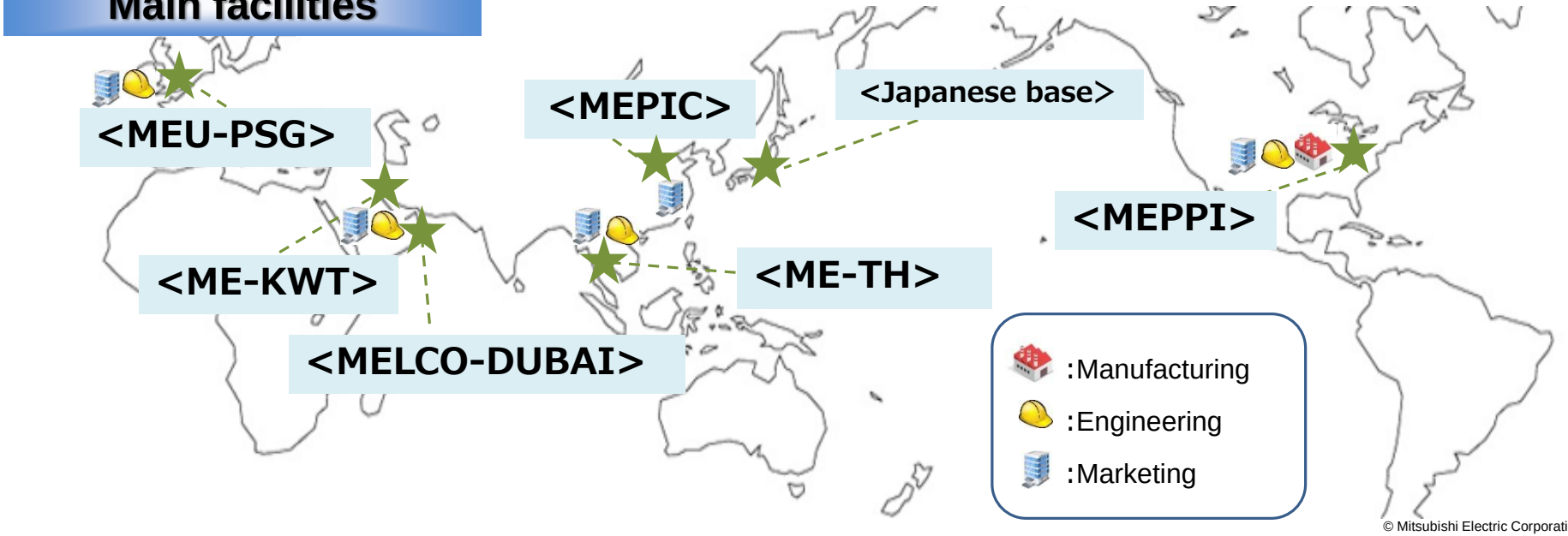
6 .Growth strategy ③Accelerate Globalization

Global facilities

✓ Started globalization in the 1980s and currently have facilities located in global markets

Area		Main facilities	Function
North Americas	USA	Mitsubishi Electric Power Products, Inc. (MEPPI)	Manufacturing / Marketing / Engineering
Middle East	UAE	Dubai Branch (MELCO－DUBAI)	Marketing / Engineering
	Kuwait	Middle East Electric Company W.L.L. (ME-KWT)	
Europe	UK	Mitsubishi Electric Europe B.V. Power Systems Gourp (MEU-PSG)	Marketing / Engineering
South-East Asia	Thailand	Mitsubishi Electric Asia(Thailand) Co., Ltd.(ME-TH)	Marketing / Engineering
China		Mitsubishi Electric Power & Electrical Infrastructure Systems (Beijing)Co.,Ltd(MEPIC)	Marketing

Main facilities

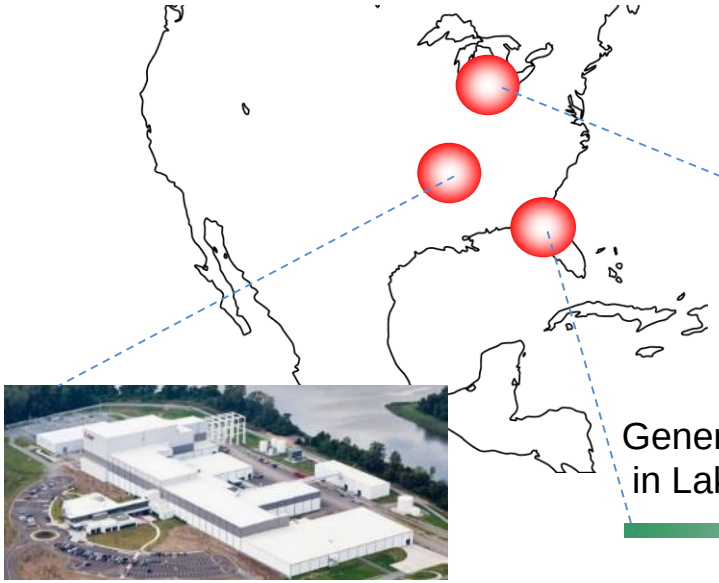


6 .Growth strategy ③Accelerate Globalization

Localization in USA

- ✓ Mitsubishi Electric Power Products, Inc.<MEPPI> founded in 1989
- ✓ Started operation of a new transformer factory in Memphis, Tennessee in 2014
- ✓ Accelerating localization of manufacturing, marketing, engineering

MEPPI's facilities



Generation systems division in Lake Mary, Florida

Transformer factory in Memphis, Tennessee

About MEPPI

- ✓ Sales：about 100 Billion JPY
- ✓ Employees：more than 1,000
- ✓ Business (Power Systems)
  - Products and sales of gas circuit breakers, vacuum circuit breakers, power transformers, and power electronics
  - Generator services

Headquarters in Warrendale, Pennsylvania

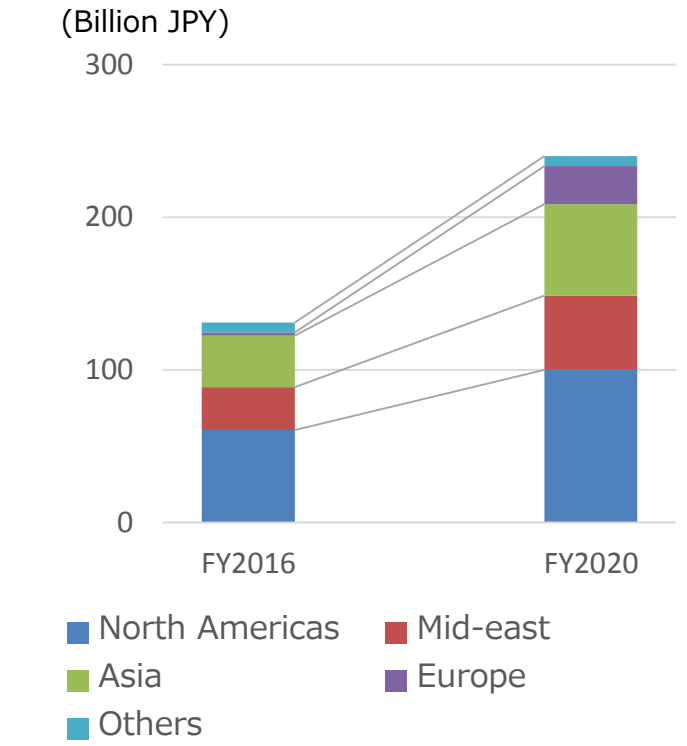
6 .Growth strategy ③Accelerate Globalization

Mid-term Strategy for overseas

- ✓ Strengthen and expand the functions of global facilities (systems engineering)
- ✓ Expand businesses into neighboring areas of each facility

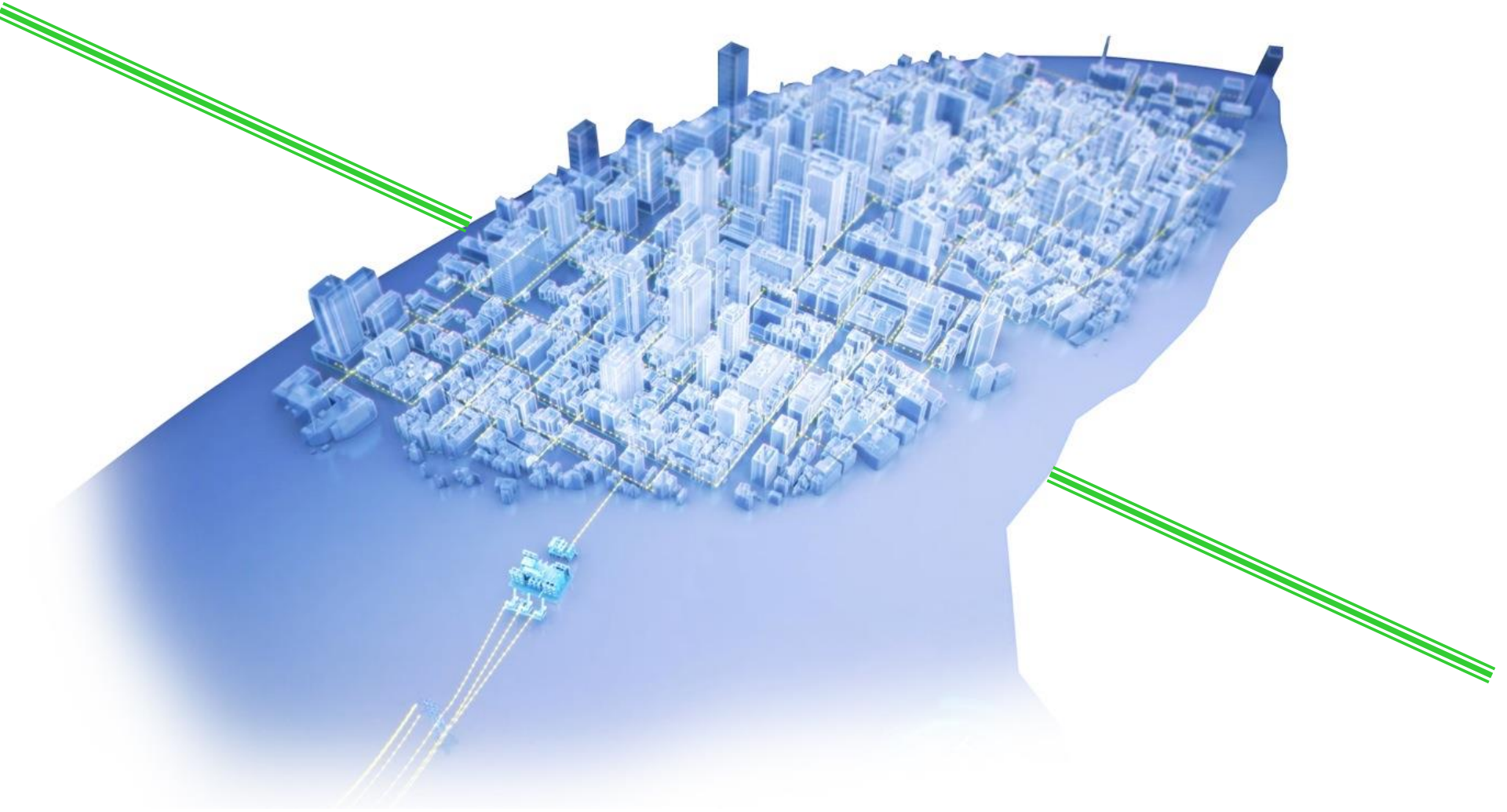
Area(facilities)		Main Initiative
North Americas (MEPPI)		✓ Accelerate localization of manufacturing, marketing, engineering ✓ Expand power electronics business ✓ Expand businesses into Latin America
Mid-east (MELCO-DUBAI)		✓ Increase orders of FTK business ✓ Get a toehold in new markets including Africa
Asia	South-East Asia (ME-TH)	✓ Expand business in Thailand and its surrounding countries
	China (MEPIC)	✓ Strengthen partnership with Chinese partners
	Others	✓ Expand businesses into target markets such as India
Europe (MEU-PSG)		✓ Secure demand of off-shore wind firms and Cross-regional grid projects

Sales plan (oversea)



MITSUBISHI ELECTRIC
Changes for the Better

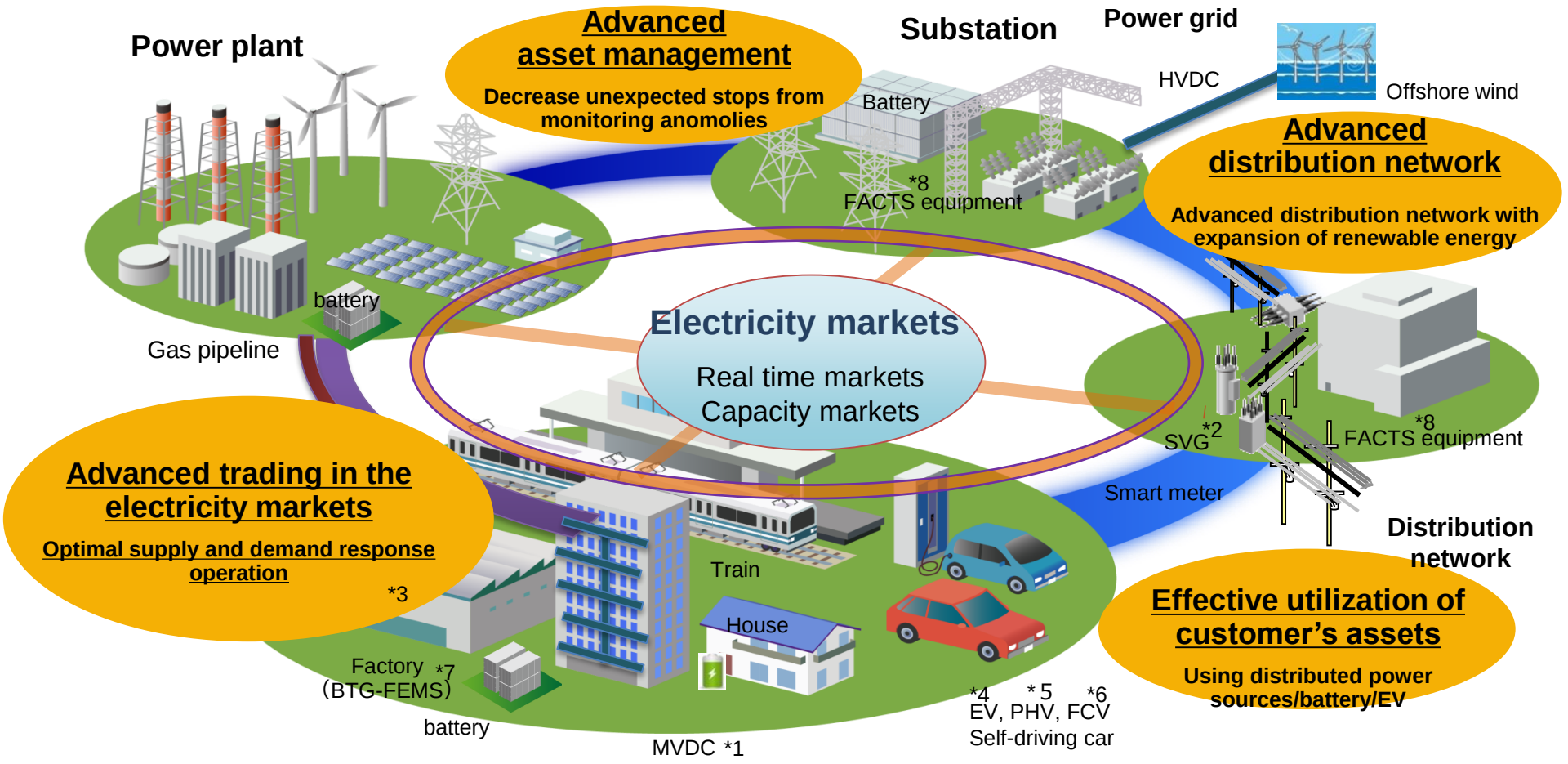
7.Development of Fundamental Technologies



7 .Development of fundamental technologies

✓ For growth beyond FY2020,develop fundamental technologies for future power systems

Future image of power systems



*1:Medium Voltage Direct Current *2:Static Var Generator *3:Demand Response *4:EV: Electric Vehicle *5:PHV : Plug-in Hybrid Vehicle
*6:Fuel Cell Vehicle *7:Boiler·Turbine·Generator – Factory Energy Management System *8:Flexible AC Transmission System

Conclusion

Growth target for FY2020

- Net sales 470 billion JPY or more
- OPM 8％ or more

Growth Strategies for FY2020

①Progress in growth business areas

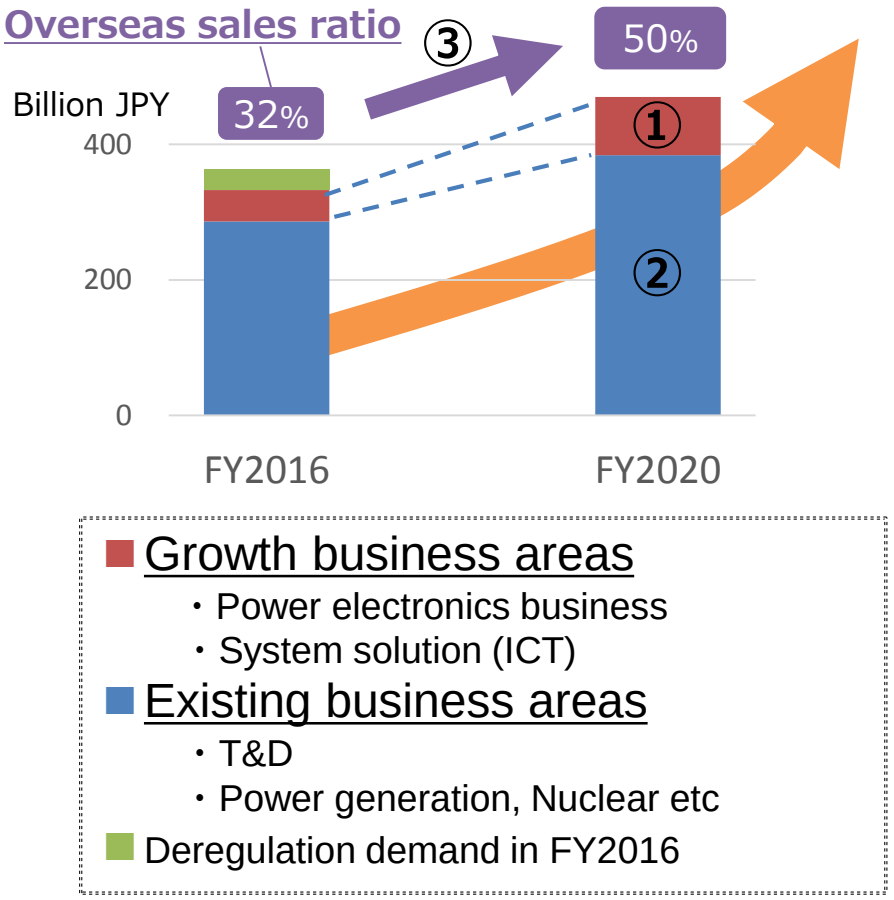
- Power electronics business
- ICT business

②Maintain and expand existing business areas

- Strengthen after-sales business
- Strengthen products competitiveness (T&D / Power generation / Nuclear etc)

③Accelerate globalization

Sales plan



Changes for the Better

Cautionary Statements

The expectation of operating results herein and any associated statement to be made orally with respect to the Company's current plans, estimates, strategies and beliefs, and any other statements that are not historical facts are forward-looking statements. Words such as "expects," "anticipates," "plans," "believes," "scheduled," "estimated," "targeted," along with any variations of these words and similar expressions are intended to identify forward-looking statements that include but are not limited to projections of revenues, earnings, performance and production. While the statements herein are based on certain assumptions and premises that the Company trusts and considers to be reasonable under the circumstances to the date of announcement, you are requested to kindly take note that actual operating results are subject to change due to any of the factors as contemplated hereunder and/or any additional factor unforeseeable as of the date of this announcement.
Such factors materially affecting the expectations expressed herein shall include but are not limited to the following. As such, additional factors may arise at any given time.

1. Any change in worldwide economic and social conditions, as well as laws, regulations, taxation and other legislation
2. Changes in foreign currency exchange rates, especially yen/dollar rates
3. Changes in stock markets, especially in Japan
4. Changes in balance of supply and demand of products that may affect prices and volume, as well as material procurement conditions
5. Changes in the ability to fund raising, especially in Japan
6. Uncertainties relating to patents, licenses and other intellectual property, including disputes involving patent infringement
7. New environmental regulations or the arising of environmental issues
8. Defects in products or services
9. Litigation and legal proceedings brought and contemplated against the Company or its subsidiaries and affiliates that may adversely affect operations or finances
10. Technological change, the development of products using new technology, manufacturing and time-to-market
11. Business restructuring
12. Incidents related to information security
13. Occurrence of large-scale disasters including earthquakes, typhoons, tsunami, fires and others
14. Social or political upheaval caused by terrorism, war, pandemic by new strains of influenza and other diseases, or other factors