Fuji Electric
Innovating Energy Technology

Energy Business Group
Research and Development looking toward FY2026

Kentaro Toyama
General Manager, Development Division

July 11th, 2024

© Fuji Electric Co., Ltd.

Business Overview

Fuji Electric
Innovating Energy Technology

Contributions to stable, optimal, and reliable supplies of clean energy

Power Generation
(Domestic sales: 62%: Overseas sales 38%)*

No. 1 global share*

Geothermal power generation facilities

Leading domestic share

Hydropower generation facilities

ED&C Components
(Domestic sales: 74%: Overseas sales 26%)*

No. 1 domestic share*

Magnetic switches

No. 2 domestic share*

Molded-case circuit breakers

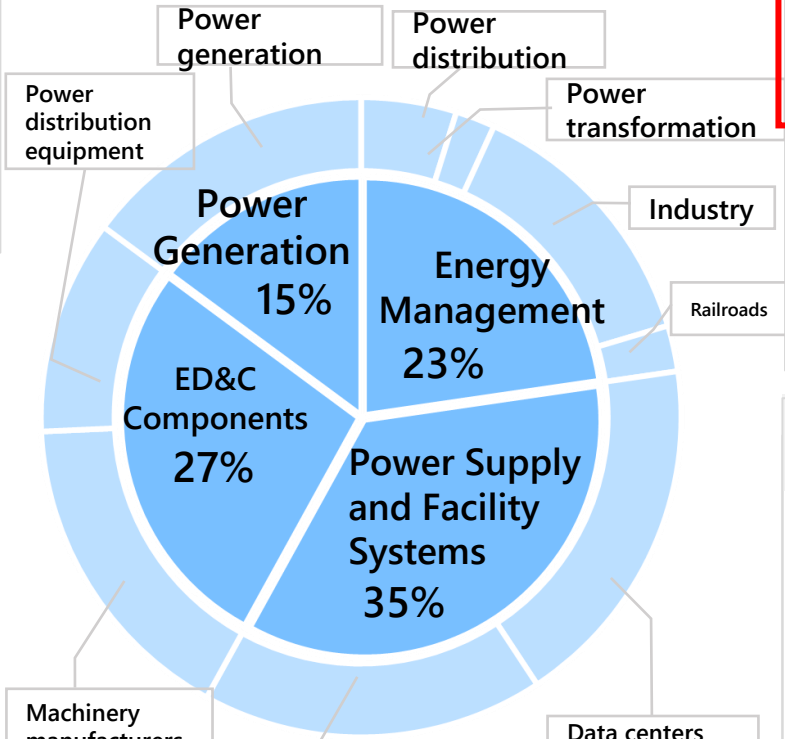
No. 2 domestic share*

High-voltage vacuum circuit breakers

No. 2 domestic share*

Command switches

Net sales (FY2023 results)
¥342.8 billion
(Domestic sales: 65%: Overseas sales 35%)*



Energy Management
(Domestic sales: 75%: Overseas sales 25%)*

Solar power generation systems

Energy management systems

Power conditioning systems (PCSs)

Large-capacity rectifiers (industrial power supplies)

Large-capacity transformers (power transformation)

Substation equipment (industrial power transformation)

Power Supply and Facility Systems
(Domestic sales: 55%: Overseas sales 45%)*

Leading domestic share

Uninterruptible power systems (UPSs)

Leading domestic share

Molded transformer

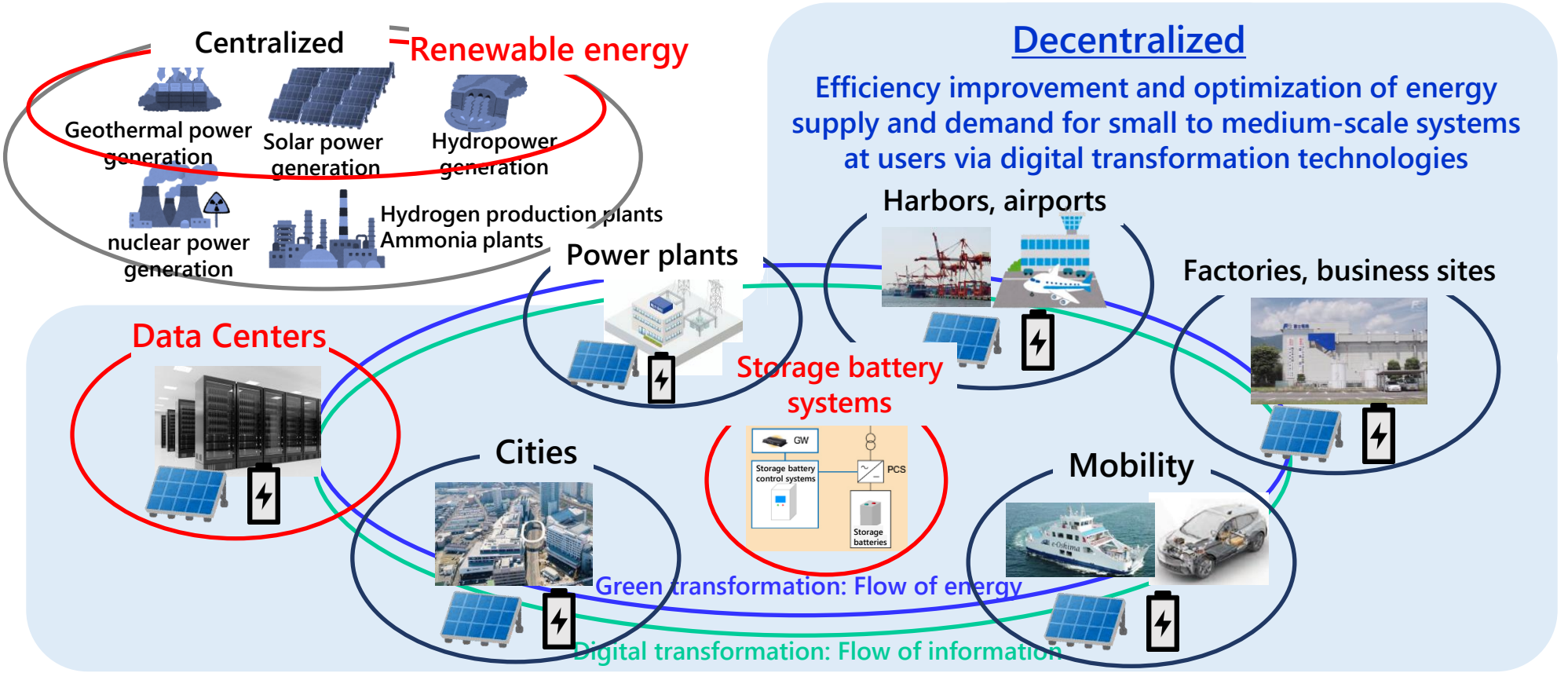
Switchgears and controlgears

* Shares represent estimates by Fuji Electric based on FY2023 performance.
Note: Percentages of total net sales figures represent FY2023 results and are calculated before deduction and adjustment for inter-segment sales.

Operating Environment and Business Opportunities

Fuji Electric
Innovating Energy Technology

Need for decarbonization of both centralized and decentralized power supplies in order to achieve green transformation



- Grid stabilization driven measures in conjunction with spread of renewable energy (electricity storage systems)
- Growing power demand and rising need for reliable power supply stimulated by brisk data center investment amid AI and digital transformation advancements
- Rising need for decarbonization of thermal energy equipment and facilities with high CO_2 emissions

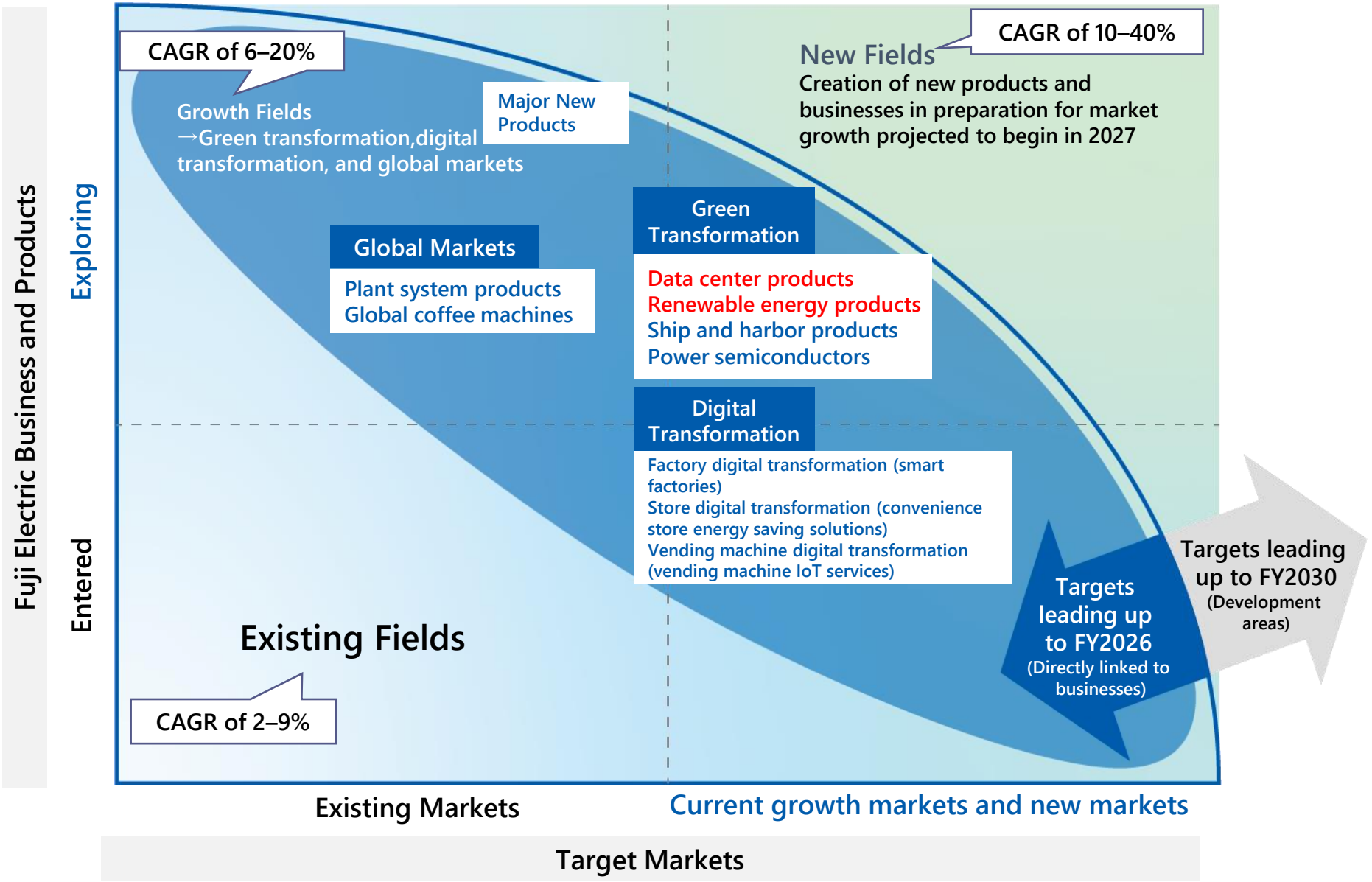
Market Outlook and Technical Requirements

Fuji Electric
Innovating Energy Technology

Business	Market Outlook and Technical Requirements (FY2024–2026)			
Energy Management	Renewable energy (Storage batteries)	Market Outlook	・Rising grid stabilization (energy storage system) needs simulated by spread of renewable energy ・Increase in regions considering adoption of regional microgrids	
		Technical Requirements	・Transition toward multi-use application of grid products to accommodate mixed use of various types of storage batteries ・Autonomous operation functions that allow storage batteries for power users to act as power supplies during power outages ・Focus on power transaction price prediction and risk management in power wholesale, supply–demand adjustment, and other markets	
Power Supply and Facility Systems	Data centers	Market Outlook	・Ongoing increase in market entries by foreign internet data center operators amid popularization of generative AI ・Rises in power consumption due to growth in demand for digital technologies and generative AI	
		Technical Requirements	・Need for larger capacities, higher efficiency, and more compact equipment for hyper scaler data centers ・Improvement of energy conversion efficiency to reduce CO_2 emissions and running costs ・Minimization of mean time to recovery	

Key Development Themes of FY2026 Medium-Term Management Plan

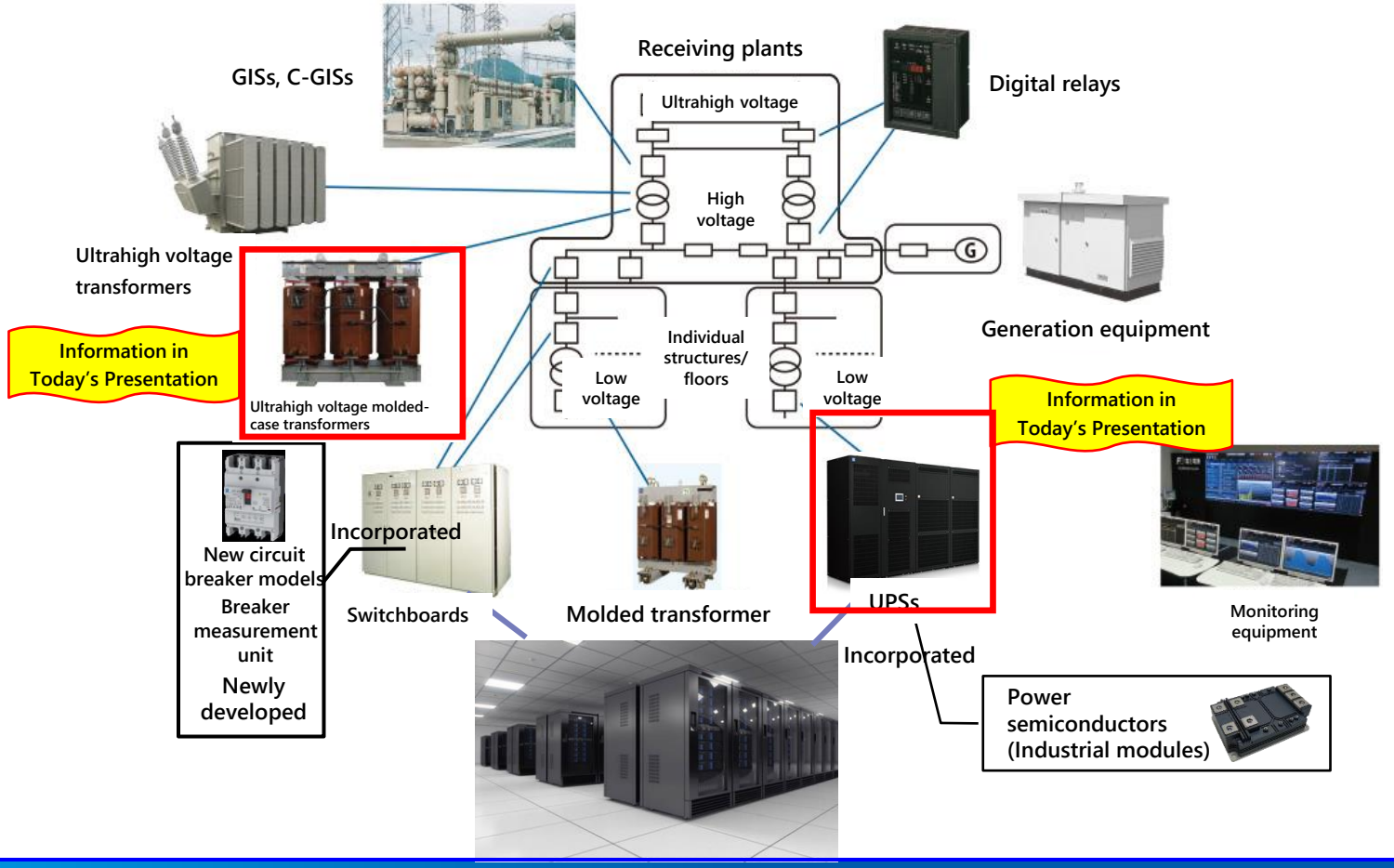
Fuji Electric
Innovating Energy Technology



Expansion of lineup of products featuring large capacities and increased power density and commercialization of comprehensive electrical equipment offerings

Data Centers

Comprehensive offerings encompassing system design, installation, and maintenance services



Expansion of lineup of large-capacity UPSs ideal for hyper scaler data centers

Features and Strengths of Large-Capacity UPSs

- Space saving by reducing size of UPSs and peripheral switchgears and controlgears
- Minimization of mean time to recovery through use of unit design
- Reduction of load test costs at time of installation through energy recovery functions

Applicable Fields

- Hyper scaler data centers
- Semiconductor production

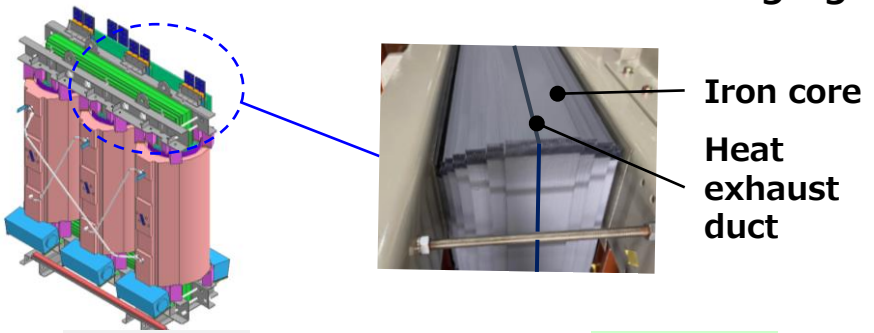
Development Focuses

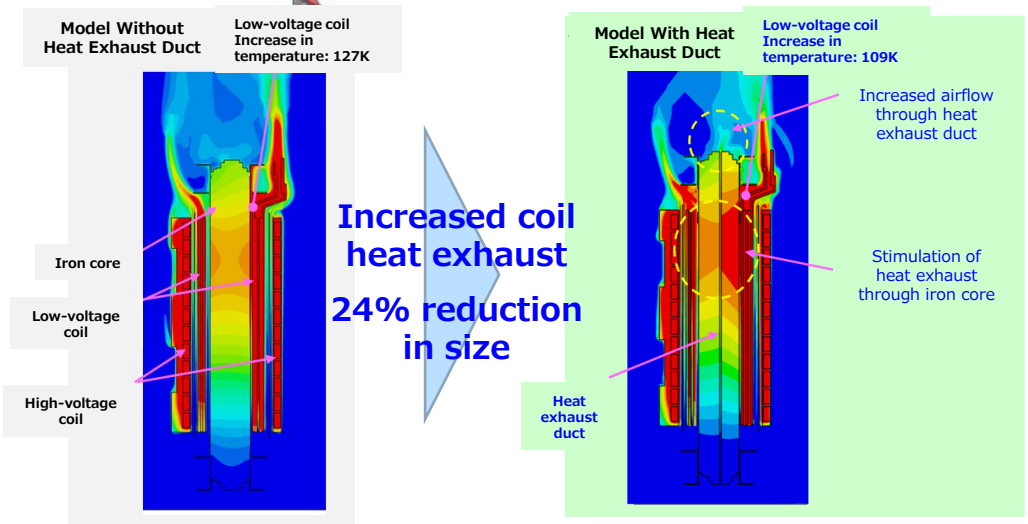
- Maximization of space available for IT equipment
  (minimization of space used for UPSs)
- High maintainability and availability

Deployment of new products featuring high price competitiveness for Southeast Asia and other global transformer markets

Features and Strengths of Molded-Case Transformers

- More-compact and lighter-weight transformers made possible by increasing insulation and coil heat exhaust levels
- Higher price competitiveness achieved through global part procurement





Applicable Fields

- Electricity distribution equipment for semiconductor factories, data centers, etc.

Development Focuses

- Price competitiveness in Southeast Asian market

Note: Rapid growth in data centers and semiconductor production projected in Southeast Asia

Enhancement of comprehensive offering that respond to rising power demand with unique existing products and new products

Comprehensive Electrical Equipment Offerings


Transformers


Gas-insulated switchgears (GISs)


Molded transformer


Ultrahigh voltage molded-case transformers


Large-capacity rectifiers


Natural ester oil-immersed transformers


Turbine, generators

Newly developed


230 kV / 300 MVA oil-immersed transformers (global specification)


Information in Today's Presentation
22 kV molded-case transformers (global specification)


Dry air switchgears (GISs, C-GISs)

Newly developed Digital substations

×

Comprehensive Energy-Saving Offerings



Renewable energy (wind power, solar power, etc.)

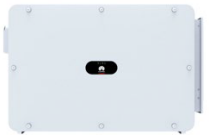

Storage battery systems


Energy management systems

Newly developed

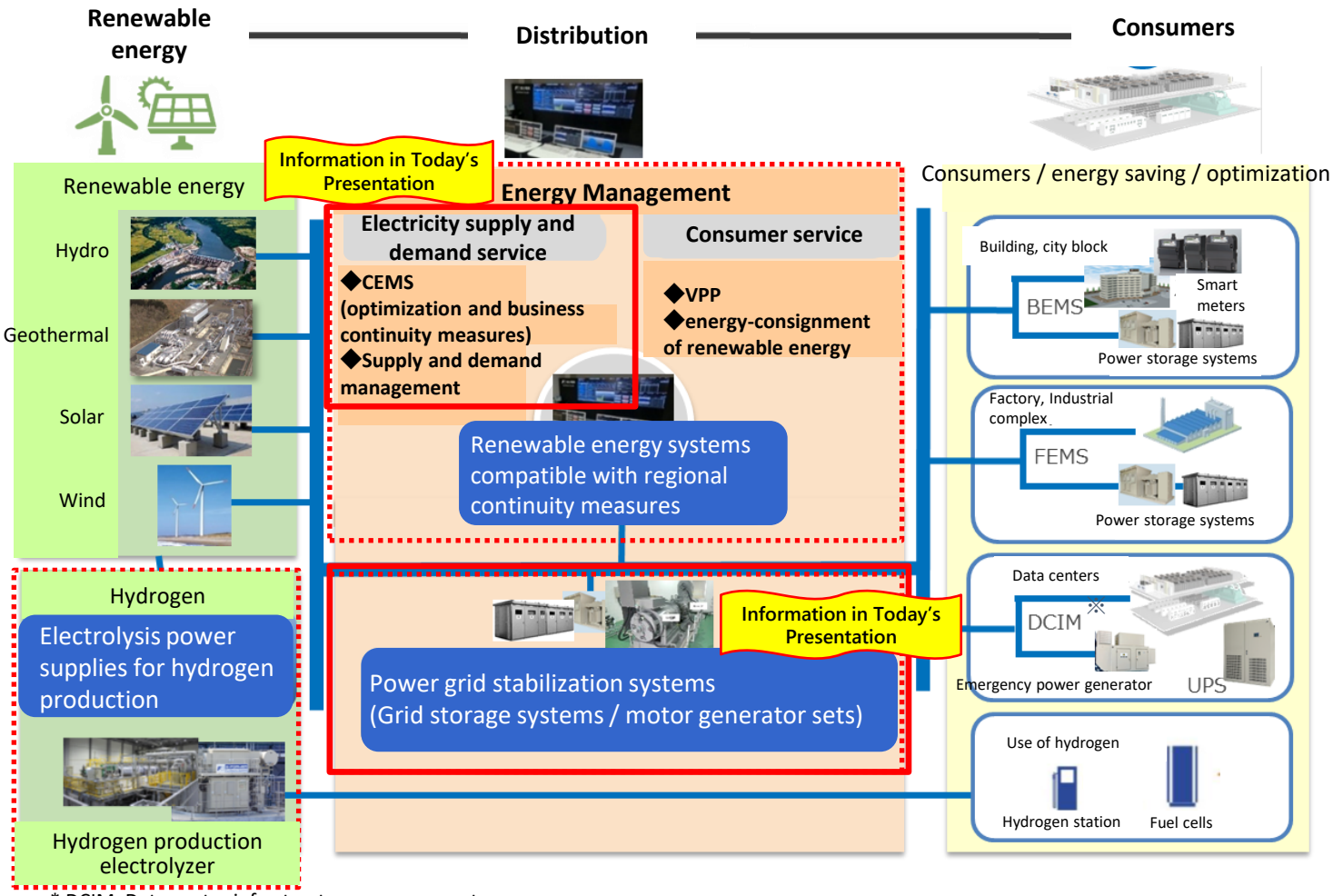
Information in Today's Presentation


PCSs for 1,500 V DC storage batteries


Large-capacity string-type PCSs

Incorporated Large-capacity power semiconductor modules for renewable energy applications

Development of grid stabilization and power transaction support systems to accommodate spread of renewable energy

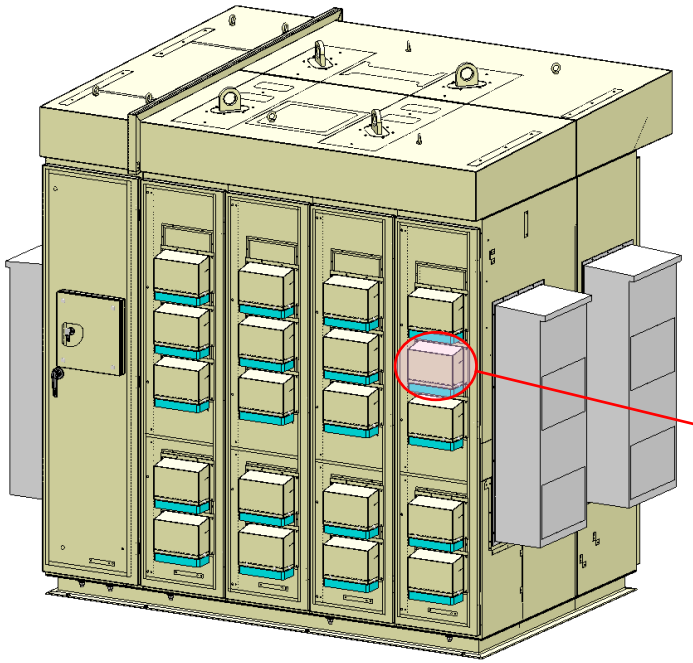


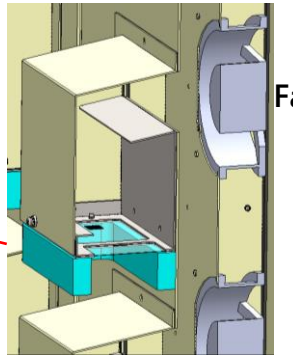
* DCIM: Data center infrastructure management

Use of storage battery PCSs for in-house solar power generation systems and for power transactions in power wholesale, supply–demand adjustment, and other markets

Features and Strengths of Storage Battery PCSs

- Reduction of system costs through use of higher voltages
- Response to diverse needs associated with autonomous operation, power retail, and power use
- Compatibility with wide range of installation environment with high salification resistance and reduced noise





Structure designed to reduce fan and other noise

Applicable Fields

- In-house solar power generation systems
- Power wholesale, supply–demand adjustment, and other power transactions
- Storage battery facilities, microgrid systems

Development Focuses

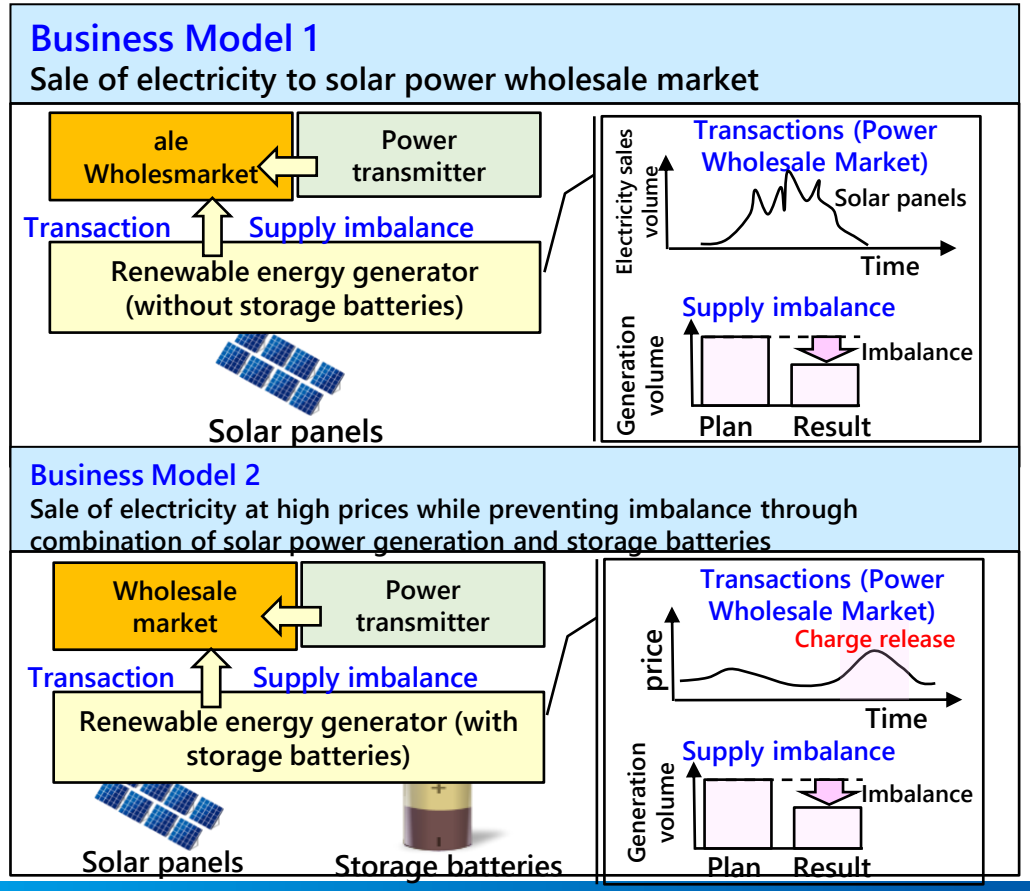
- Expansion of capacity lineup to match customer needs
- Development of autonomous operation functions

Note: Increased use of renewable energy and expansion of storage battery facilities anticipated as part of decarbonization trend

AI-powered prediction and optimization technologies able to accommodate various power transaction needs

Features and Strengths of Power Transaction Support Technologies

- Reduction of imbalance and other risks through use of AI to formulate high-accuracy predictions of power transaction prices
- Contribution to maximized earnings for power generators



Applicable Fields

- Power wholesale, supply–demand adjustment, and other markets

Development Focuses

- Power transaction price prediction technologies
- Technologies for producing transaction plans that incorporate risks

1. Statements made in this documents or in the presentation to which they pertain regarding estimates or projections are forward-looking statements based on the company's judgments and assumptions in light of information currently available. Actual results may differ materially from those projected as a result of uncertainties inherent in such judgments and assumptions, as well as changes in business operations or other internal or external conditions. Accordingly, the company gives no guarantee regarding the reliability of any information contained in these forward-looking statements.

2. These documents are for information purpose only, and do not constitute an inducement by the company to make investments.

3. Unauthorized reproduction of these documents, in part or in whole, is prohibited.

Fuji Electric
Innovating Energy Technology