

Business Briefing

Energy Infrastructure business

June 7, 2023

Furukawa Electric Co., Ltd.

Energy Infrastructure Division

General Manager Eiichi Nishimura

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FURUKAWA ELECTRIC CO., LTD.

■ Progress of the 2025 Mid-term Plan

Achieved increased profit on higher revenue in FY2022 compared to the last year, and making steady progress toward achieving the mid-term plan

■ FY2023 policy

Conduct sales activities with a focus on profits for the products in the target segments and adjust prices to appropriate levels

Cover the higher depreciation expenses through increased net sales, and secure the same profit level as last year

■ Directed at achieving Vision 2030

【Power Cable】

Actively pursue the renewable energy business in Japan, particularly offshore wind power and submarine power cable for wide-area interconnections

【Industrial Cable & Power Cable Accessories】

Provide high value added products designed to solve social issues in the areas of electric power, railroads and next-generation infrastructure

【 1. Overall Energy Infrastructure segment】

- 1-1. Progress of the 2025 Mid-term Plan – Initiatives for achieving the targets
- 1-1. Progress of the 2025 Mid-term Plan – Quantitative overview
- 1-2. Looking back on the FY22 financial results
- 1-3. FY23 Policy and strategy/Measure for business Growth

【 2. Power Cable division】

- 2-1. Market overview
- 2-2. 5 main initiatives① Secure orders
- 5 main initiatives② Increase cable manufacturing capacity
- 5 main initiatives③ Increase installation capacity of underground cable
- 5 main initiatives④ Promote technology development
- 5 main initiatives⑤ Promote renewable energy/direct current business
- 2-3. Initiatives for achieving Vision 2030
- Topics (Water intake pipe and water supply pipe projects)

【 3. Industrial Cable & Power Cable Accessories division】

- 3-1. Market overview
- 3-2. 3 main initiatives① Increase product sales to electric power and railroad companies
- 3 main initiatives② Launch high value added/strategic products in the target segments
- 3 main initiatives③ Shift to next-generation high performance products
- 3-3. Initiatives for achieving Vision 2030
- Topics (Cable with plugin connectors)
- Topics (*Rakuraku* aluminum cable)
- Appendix

Power Cable

Target segments

- ✓ Japan extra-high voltage underground cable
- ✓ Japan renewable energy (submarine + underground cable)
- ✓ Overseas submarine cable (Asia)

5 main initiatives

- ✓ Secure orders
- ✓ Increase cable manufacturing capacity
- ✓ Increase installation capacity
- ✓ Promote technology development
- ✓ Promote the renewable energy/direct current business

Industrial Cable & Power Cable Accessories

Target segments

- ✓ Social infrastructure
- ✓ Japan renewable energy
- ✓ Disaster prevention & mitigation
- ✓ Next-generation infrastructure

3 main initiatives

- ✓ Increase product sales to electric power and railroad companies
- ✓ Launch high value added/strategic products in the target segments
- ✓ Shift to next-generation high performance products

Make Energy Infrastructure into one of the pillars of the Furukawa Electric group
Focus on the target segments and continue to execute each initiative

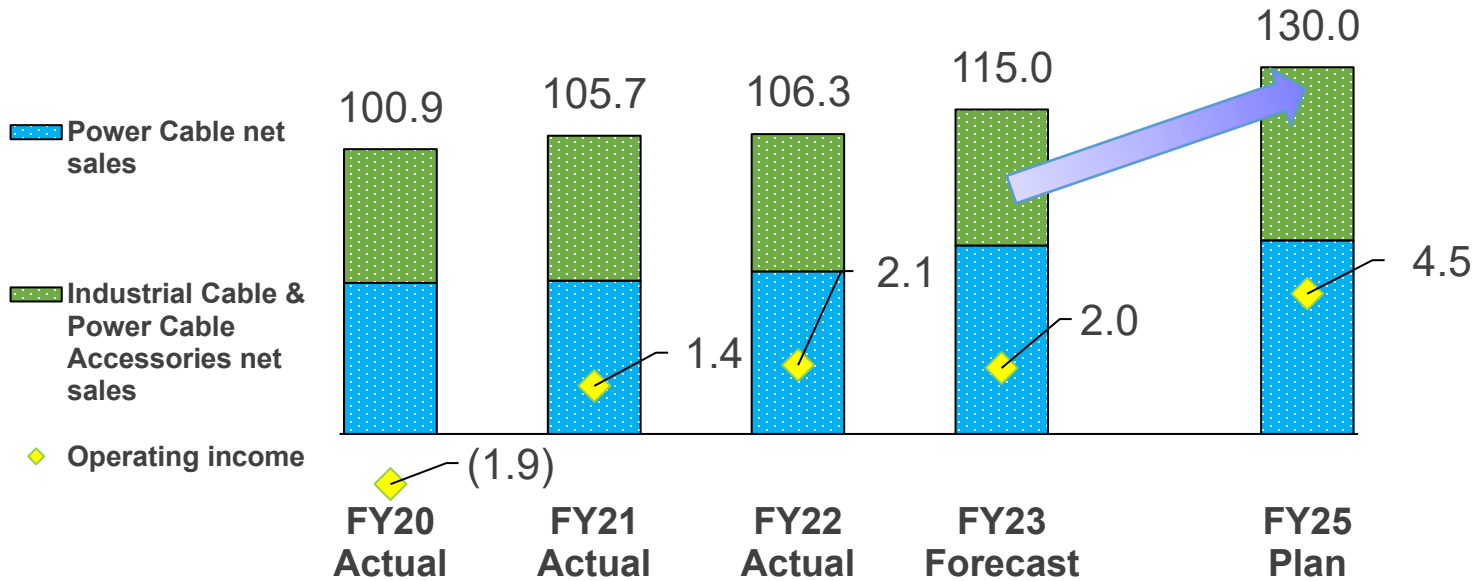
1-1. Progress of the 2025 Mid-term Plan

FY25 plan: Net sales of JPY 130.0 billion and operating income of JPY 4.5 billion (unchanged from the figures announced last year)

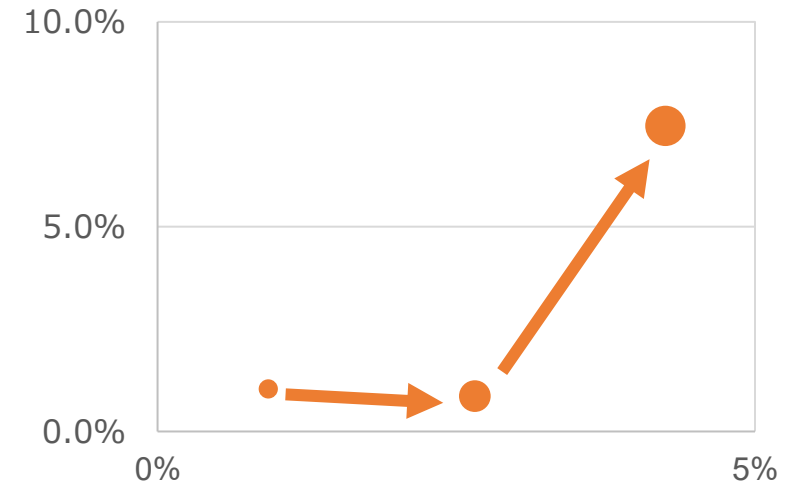
(Progress) Steadily executing the mid-term plan and realizing actual results

Making steady progress toward achieving the 2025 Mid-term Plan

Energy Infrastructure Financial Results (JPY billion)



ROIC (FY21 actual → FY22 actual → FY25 target)



Vertical axis: Net sales CAGR (FY17-21→FY18~22→FY21~25)
 Horizontal axis: ROIC (FY21→FY22→FY25)
 Bubble: NOPAT (FY21→FY22→FY25)

Increase the profit margin through increased sales of high value added products and in the renewable energy business

1-2. Looking back on the FY22 financial results

JPY billion	FY21 actual	FY22 actual	Change
Net sales	105.7	106.3	+0.6
Operating income	1.4	2.1	+0.7

Finished building a foundation for achieving the 2025 Mid-term Plan

Overall Energy Infrastructure segment

Each business

- Both the Power Cable and Industrial Cable & Power Cable Accessories businesses achieved solid results
 - ⇒ Increased profit on higher revenue compared to last year
- ✓ Improved profit margins through sales activities with a focus on profit
- ✓ Realized benefits from incorporating the soaring raw material prices in the sales price
- ✓ Completed the portfolio revisions (General-use power cable, bus ducts, unprofitable overseas underground cable projects)

- 【Power Cable】
 - ✓ Japan underground cable projects were steady
 - ✓ Recorded the large overseas submarine cable projects as sales
 - ✓ Water pipes (strategic product for SDGs) contributed to earnings
 - ✓ Decreased operating levels at the subsidiary in China and delays to customer construction projects due to the COVID-19 lockdowns
- 【Industrial Cable & Power Cable Accessories】
 - ✓ Transmission components were steady
 - ✓ Increased sales of *Rakuraku* aluminum cable

1-3. FY23 Policy and strategy / Initiatives for business growth

Cover the higher depreciation expenses through increased net sales, and secure the same profit levels as last year

JPY billion	FY21 actual	FY22 actual	Change
Net sales	106.3	115.0	+8.7
Operating income	2.1	2.0	(0.1)

Policy / strategy

Policy: Contribute to building safe, peaceful and rewarding social infrastructure through unique products and technology, and expand the business

Strategy: Priority investments in the target segments

【Power Cable】

Make renewable energy, which is undergoing a full-scale launch of large projects, into a pillar of the business along with Japan extra-high voltage underground cable

【Industrial Cable & Power Cable Accessories】

Increase sales of strategic products in the target segments

Initiatives for business growth

Continue to implement the 2025 Mid-term Plan initiatives (Power Cable= 5 main initiatives/Industrial Cable & Power Cable Accessories= 3 main initiatives)

【Power Cable】

- ✓ Strengthen project management
 - ⇒ Definitely execute the renewable energy projects
 - ✓ Continue to implement the initiatives for increasing capacity directed at expanding the business
 - ✓ Enhance the earnings capability of the subsidiary in China
- ### 【Industrial Cable & Power Cable Accessories】
- ✓ Increase sales of high value added products to electric power and railroad companies
 - ✓ Increase sales of high value added new products, including *Rakuraku* aluminum cable and plugin connectors

Power Cable

Yukihiro Yagi

General Manager, Power Cable Division

2-1. Market overview

Business environment is trending as forecast in the 2025 Mid-term Plan

Japan extra-high voltage underground cable

Market continues to expand as a result of the demand for power cable renewal (replacement of OF cable)

Japan submarine cable for renewable energy

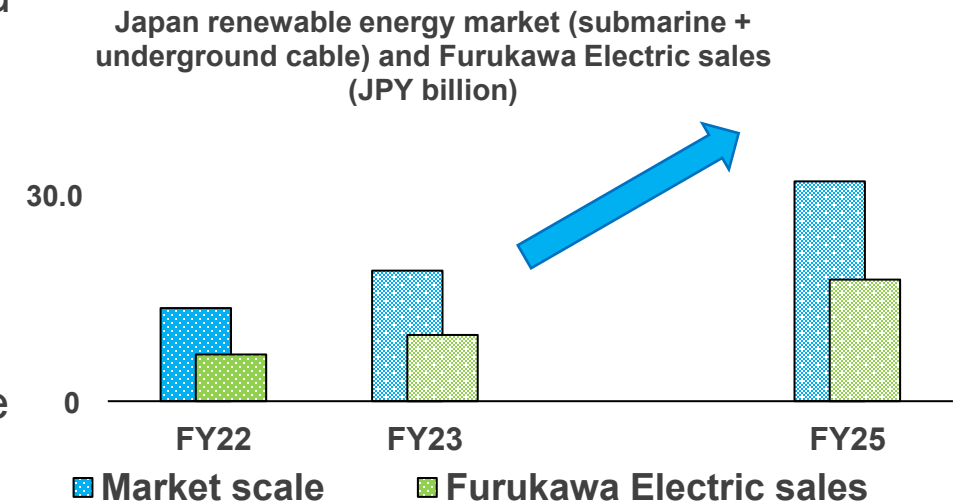
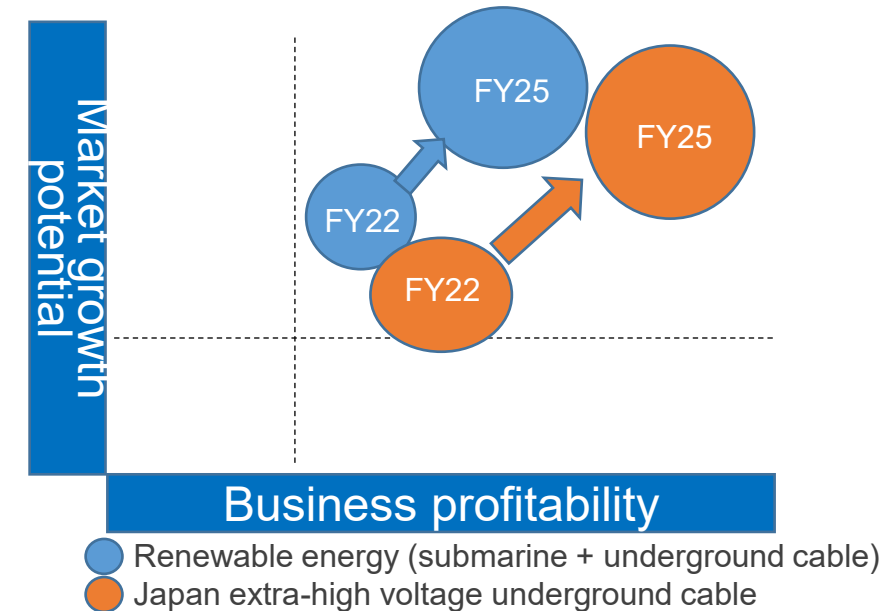
Full-scale commencement of the large scale harbor-based offshore wind power projects

Furukawa Electric has partnered in the engineering and commenced manufacturing and installation

Japan underground cable for renewable energy

Underlying growth trend remains intact centered on land-based wind power and solar power projects

Plans for large land-based wind power projects are further taking shape, and requests to us for cooperation are becoming more active



2-2. 5 main initiatives ① Secure orders

Promote sales activities with a focus on the target segments

2025 Mid-term Plan

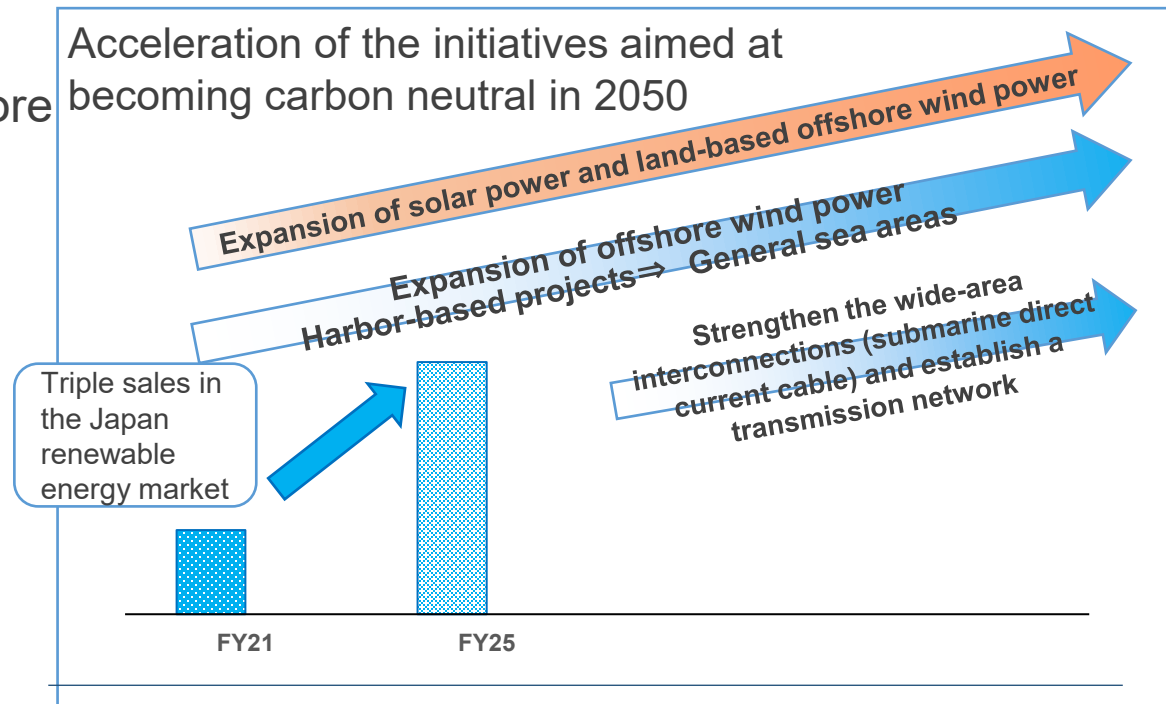
- Triple sales in the Japan renewable energy market (submarine + underground cable) compared to FY21
- Secure stable profits based on long-term contracts in the Japan extra-high voltage underground cable market
- Intermittent orders for water pipes leveraging the submarine power cable technology

Initiatives directed at the next medium-term plan

- Provide engineering services based on the plan for offshore wind power projects in general sea areas and wide-area interconnections
 - ⇒ Differentiation through intangible sales that will lead to future orders

FY23 initiatives

- Continue to conduct sales activities with a focus on profit
- Adjust sales prices to appropriate levels by incorporating the higher costs



2-2. 5 main initiatives ② Increase cable manufacturing capacity

25 Mid-term Plan: Double cable manufacturing capacity (compared to FY2017)

CAPEX (Chiba Works)

Invest a cumulative total of JPY 15.0 billion over eight years (FY2018 - FY2025)

70% of investments were completed by the end of FY2022

Given the increasing demand for submarine power cable for renewable energy, actively invest in submarine cable facilities

- Manufacturing capacity of long-length submarine power cable that reduce the number of joints
- Large turntable for submarine power cable



Loading submarine cable onto a barge

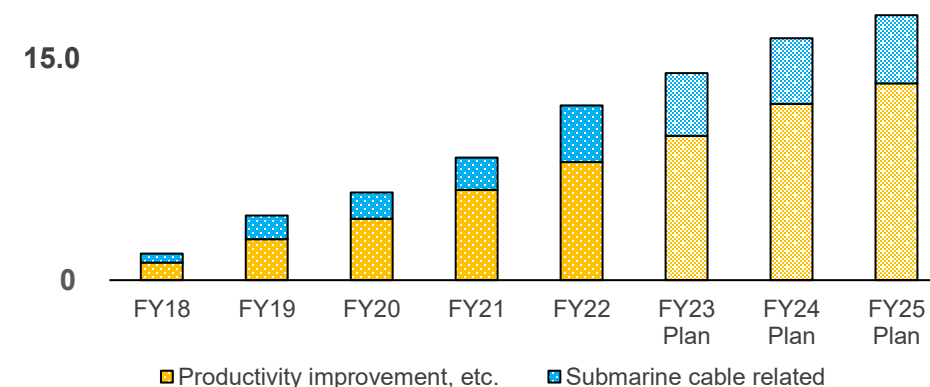
Increase productivity

- Facility renewal
- Promotion of *Monozukuri DX*

Achieved an increase of 1.8 times through FY2022 (compared to FY2017)
From FY2023, operate the submarine power cable manufacturing line at full capacity

⇒ **Transition to the phase in which the benefits of the investments are realized**

Planned major CAPEX at the Chiba Works (cumulative) JPY billion



2-2. 5 main initiatives ③ Increase installation capacity

Double installation capacity by FY2025 (compared to FY2017)

- Respond to demand from electric power companies for mains replacement
- Respond to growing installation demand for renewable energy projects in Japan

Reinforce the teams working directly for Furukawa Electric

- Increase personnel by enhancing recruitment activities
- Improve site manager / jointer compensation
- Increase cable jointing skills

Expand the partnerships with partner companies

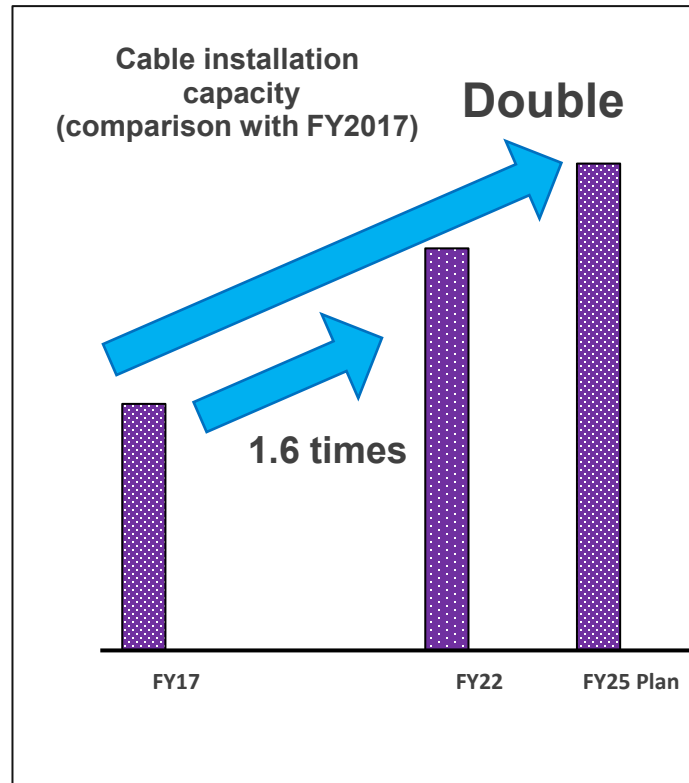
- Increase the number of partner companies
- Increase operational efficiency through technological support from Furukawa Electric

Develop new technology

- Introduce joint components that are easy to install
- Improve installation methods and promote DX for installation

Respond to the application of the Labor Standards Act to the construction business (from FY2024)

⇒ **Continue to increase installation capacity while ensuring legal compliance**



Installation skills training



Underground cable installation worksite

2-2. 5 main initiatives ④ Promote technology development

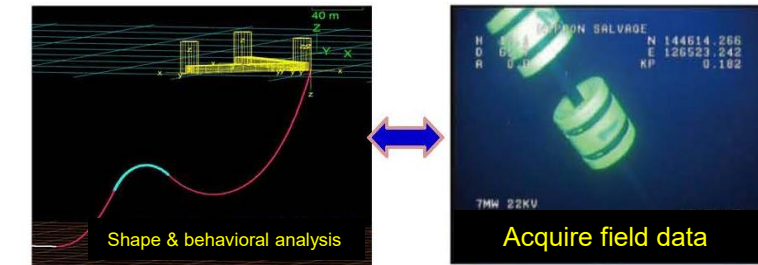
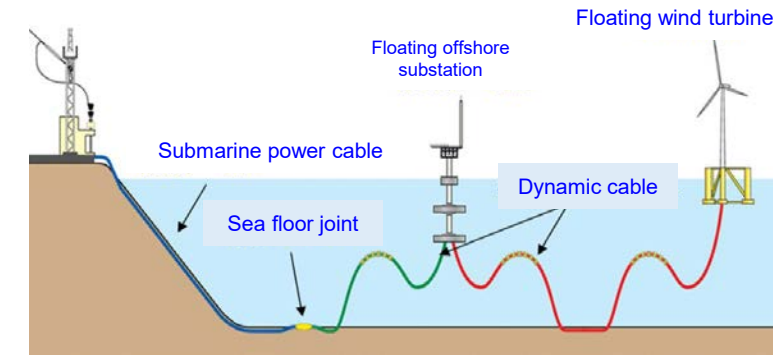
Focus on offshore wind power and direct current, which have a bright future

Develop a submarine power transmission system for next-generation floating wind power

Conduct 3 projects under the NEDO Green Innovation Fund (GI Fund)

- Develop high voltage dynamic cable usable for large-scale offshore wind power
- Develop a power transmission system for TLP* offshore wind power
*Tension Leg Platform: Realize a stable, compact floating structure through the use of tensioned tendons
- Project for developing a submarine cable laying vessel

In FY2023, start preparations to submit a bid in the public bidding for phase 2 (floating wind turbine trial)



Develop a sea floor power transmission system for floating offshore wind power

Develop direct current cable

- Complete the long-term demonstration project of a 525kV direct current cable system
- Work with NEDO to develop submarine cable capable of being installed at depths of 1500m

Acquire certification

- Acquire international certification for the submarine power cable used for overseas submarine cable projects and offshore wind power in Japan

2-2. 5 main initiatives ⑤ Promote the renewable energy / direct current business

Renewable energy and direct current business

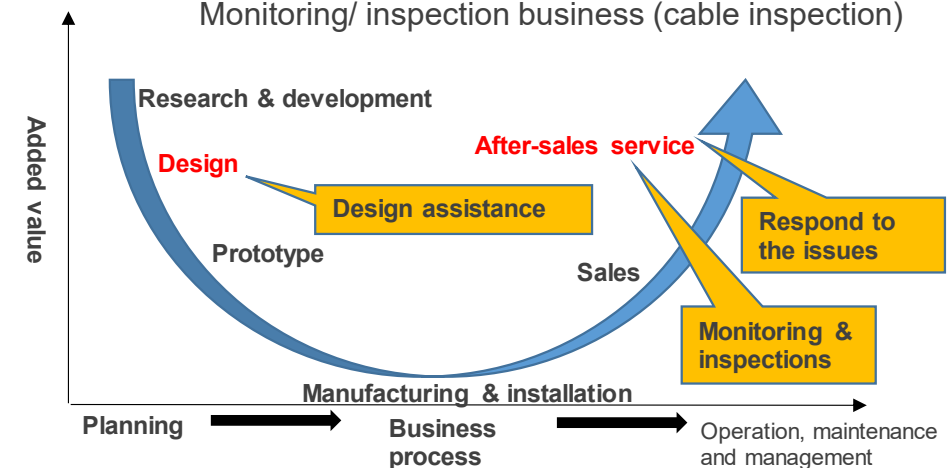
- Power line design, specifications and contract conditions need to match the features of each project
- ⇒ Newly established the Power Cable Project Department (April 2023)
Build a new business model that centralizes project management know-how

Promote intangible sales

- Expand the engineering services leveraging the group's unique Technology
- Increase the presence in the offshore wind power market by transitioning from just product sales to offering everything from engineering to cable manufacturing/laying and after-sales service



Monitoring/ inspection business (cable inspection)



Provide added value that supports the project (design, operation, maintenance, management)

⇒ Deepen the partnerships with customers and further expand the business during the term covered by the next medium-term management plan

2-3. Initiatives for achieving Vision 2030

Vision 2030

Establish a business with a strong presence centered on energy

Directed at “becoming carbon neutral in 2050”, create a presence as the only company in Japan in the area of power cable systems that support the expanded application of renewable energy

Outlook for the establishment of social infrastructure directed at 2030

During the period covered by the next medium-term management plan, target segment growth will accelerate

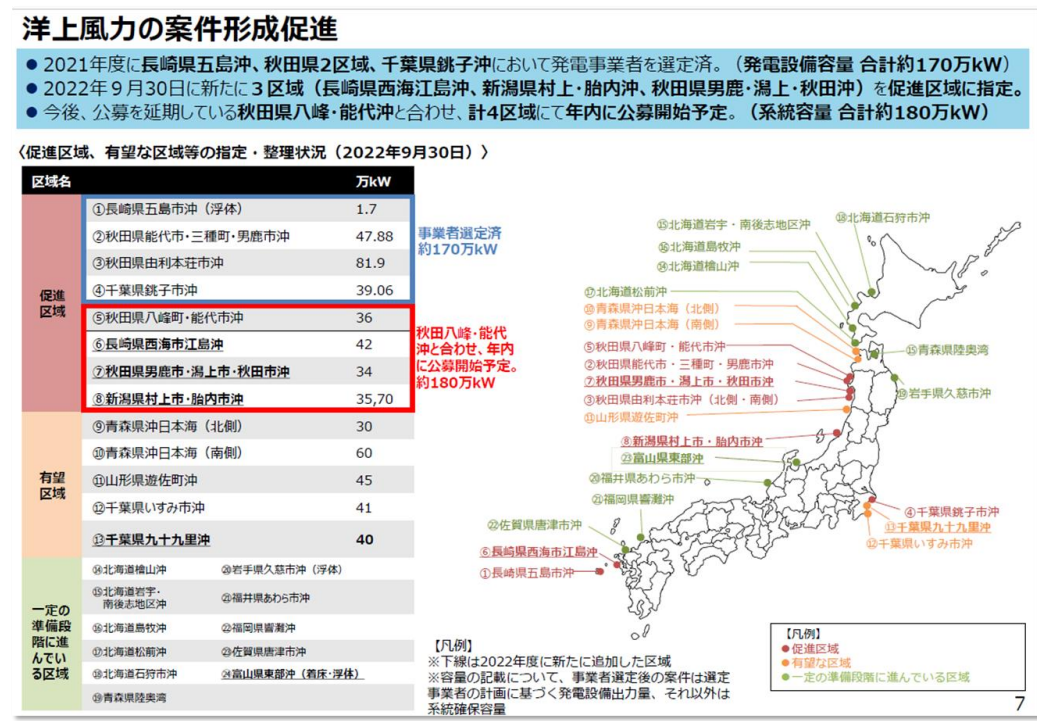
Japan submarine cable for renewable energy

Promote the formation of projects totaling 1GW/year through 2030 (until reaching a total of 10GW) in the promotion areas based on the Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities

Japan extra-high voltage underground cable

- OF replacement demand (for electric power companies) will remain strong through 2030
- Higher cable voltages following the increased scale of renewable energy projects

Offshore wind power projects in Japan



Excerpt from “National offshore wind power policy” issued by the Agency for Natural Resources and Energy

2-3. Initiatives for achieving Vision 2030

Wide-area grid projects in Japan will begin from FY2026

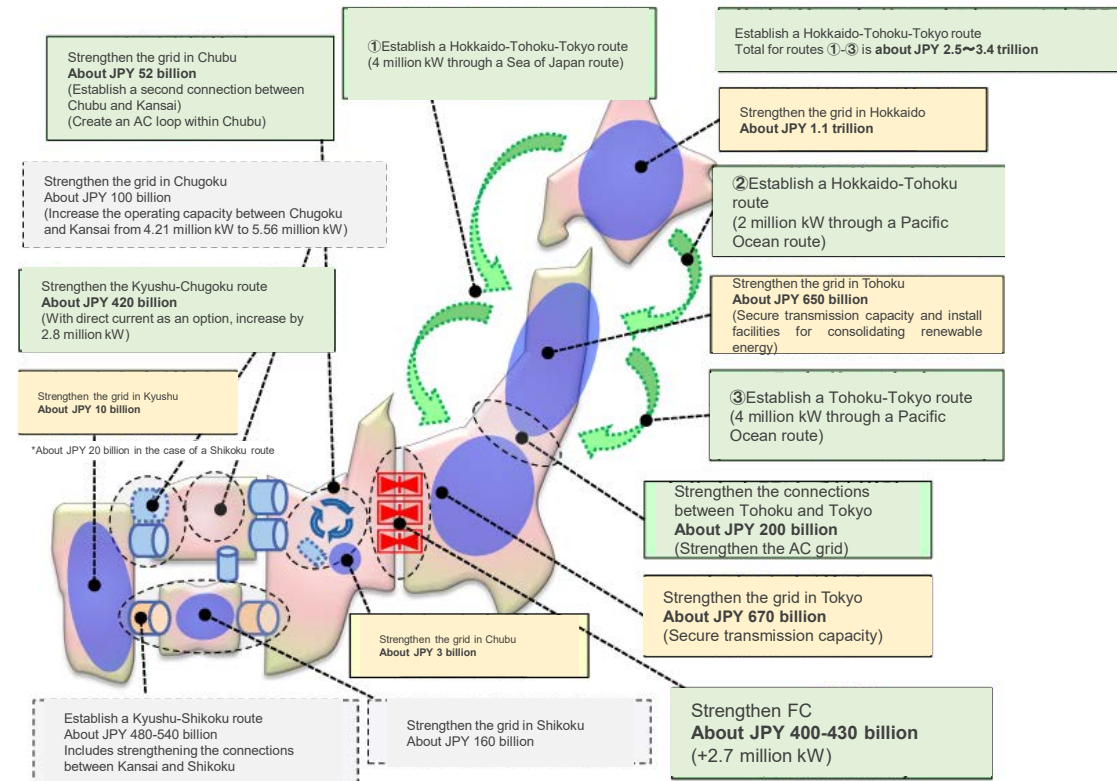
Wide-area submarine power cable interconnections (HVDC/AC)

- Under the lead of the national government, measures to strengthen the wide-area interconnections between regions have been envisioned (Furukawa Electric participated in studying this policy)
- For the Hokkaido-Tohoku-Tokyo connection (including DC submarine power cable), the planning process has begun directed at actual implementation from 2030

Initiatives for achieving Vision 2030

- Actively respond to the accelerating demand growth for offshore wind power projects in general sea areas and wide-area interconnections
- Complete technology development for next-generation floating wind power and a direct current transmission system
- Specify a plan for further increasing capacity (new manufacturing line)

Long-term wide-area grid policy



Long-term wide-area grid policy from OCCTO's "Study sessions regarding the wide-area grid master plan and rules for using the grid"
Excerpt from the <Appendix (documents)> in the wide-area grid master plan

Topics (Water intake pipe and water supply pipe projects)

Utilization of products designed to solve social issues that contribute to the stable supply of water

Delivery of offshore seawater intake pipes to Nyuzen Town in Toyama Prefecture

Furukawa Electric and our group company Furukawa Sangyo Kaisha, Ltd. delivered deep water intake pipes to Nyuzen Town, and installation was completed by Shimizu Corporation in November 2022. We will continue to focus on submarine water supply pipes and seawater intake pipes as an initiative for achieving the SDGs and realizing convenient, people-oriented town planning.

Renewal of the submarine water pipes between Motobu Town and Ie Island in Okinawa

As part of the Okinawa Prefectural Enterprise Bureau's project for the renewal of a total length of 7km of water pipes installed between Motobu Town and Ie Island, we delivered Aqualex® water pipes, and installation was completed in March of this year. These pipes will contribute to the continued stable supply of water to island residents.



Submarine water supply pipes (Same wire-plated polyethylene structure as the water intake pipes)



Loading the submarine water supply pipes onto a barge

Industrial Cable & Power Cable Accessories

Shigeru Tokuda

General Manager, Industrial Cable & Power Cable Accessories Division

3-1. Market overview

Social infrastructure

In the power cable domain, demand will continue for the replacement of structures during the high-growth period, and in the railroad domain, demand will increase following the end of the COVID-19 pandemic

Renewable energy in Japan

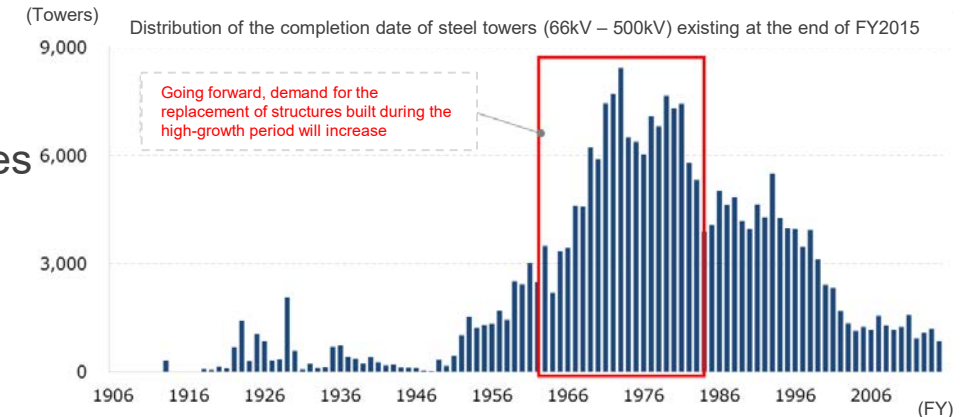
Increasing the ratio of renewable energy in the energy mix
Target for solar and wind power is to increase from 8.8% in FY2020 to 20% in FY2030

Preventing & mitigating disasters and increasing national resilience

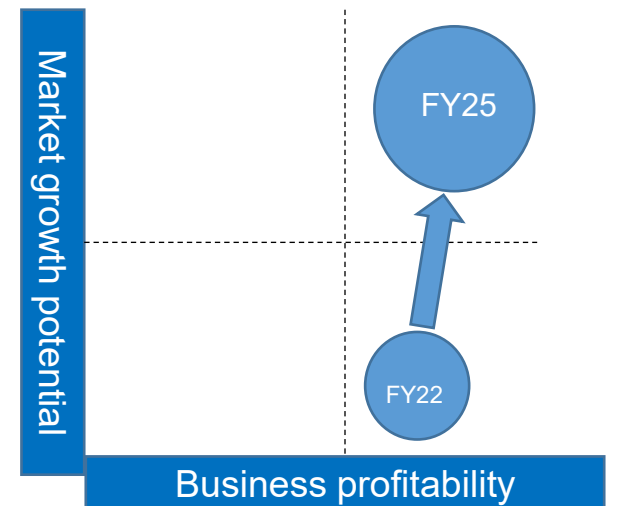
Accelerate the initiatives for natural disasters that will become more frequent and severe as global warming progresses, increase the resilience of electric power infrastructure and build interconnections between regions

Next-generation infrastructure

Swift, planned establishment of data centers that will handle increased data traffic resulting from advanced in DX and widespread use of IoT and 5G services



Excerpt from the “Transition to the next generation of electric power networks” issued by the Agency for Natural Resources and Energy



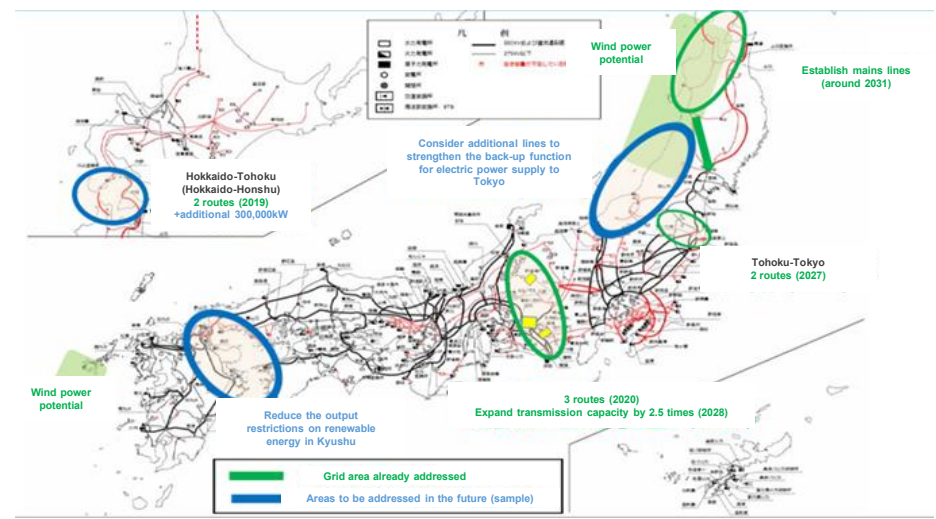
● Japan renewable energy, disaster prevention & mitigation, next-generation infrastructure

3-2. 3 main initiatives ① Increase product sales to electric power and railroad companies

Roll out high value added products in the electric power and railroad domains

Electric power domain

Reduce the weight and improve the workability of the wedge-shaped dead end clamps and loose spacers for strengthening the wide-area grid (overhead power lines), and launch polymer insulators



Polymer insulators for overhead transmission lines

Launch insulators for the transmission lines in addition to the jumper wires



Wedge-shaped dead end clamp

Actually used for East-West interconnections
The lighter weight contributes to easier installation



Loose spacers

Reduces snow damage (galloping), and the lighter weight contributes to lower stress on the steel towers

Railroad domain

Increase sales of polymer insulators for railroads as demand recovers following the end of the COVID-19 pandemic



Polymer insulators for railroads

Increase sales leveraging the characteristics of lightweight and maintenance free

Launch high value added products (efficient installation/skill-free) designed to solve social issues

Carbon neutral

Contribute to solar power stations and the overall renewable energy market through the easy to install *Rakuraku* aluminum cable

Disaster prevention and mitigation

Contribute to securing emergency power during disasters through one-touch plugin connectors

Next-generation infrastructure

Contribute to data center demand through TM sheets and Drykeeper (devices) and plugin connectors (facilities)

Aging society

Contribute to the realization of skill-free and efficient installation through business synergies in response to the “labor shortage” that is a factor in all social issues



Rakuraku aluminum cable

Demand for this lightweight, easy to install, flexible cable is increasing in the renewable energy and general construction markets



Plugin connector + cable

New proposal for cable connections through a combination of the connector (FEPS) and diverse cable (FEIC)



TM sheet (heat dissipation sheet)

Contribute to increased electronic device performance through “thermal dissipation” and “low VOC※”

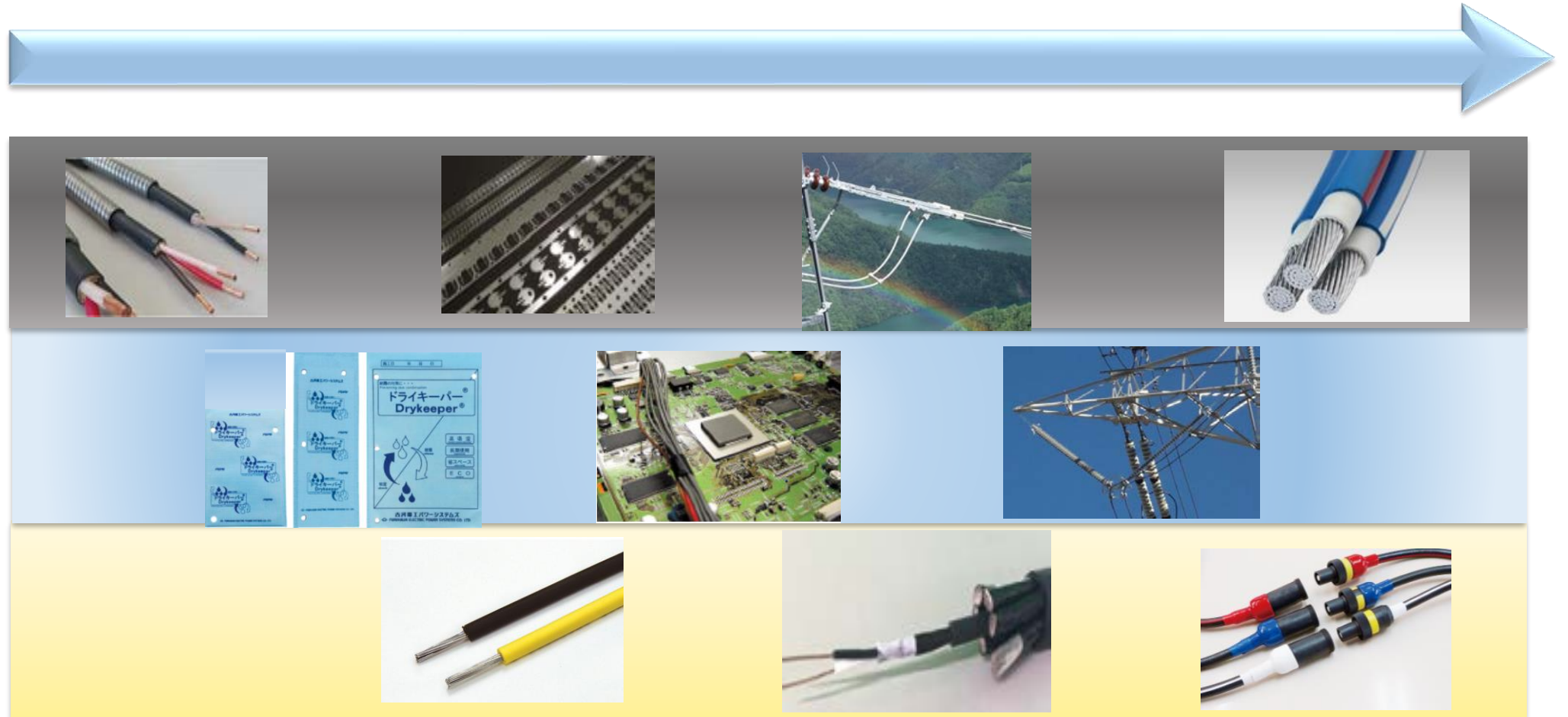


Drykeeper (condensation prevention)

Contribute to preventing failures and increased electronic device mounting density through the “high absorbance” and “broad product lineup”

※VOC: Volatile Organic Compounds

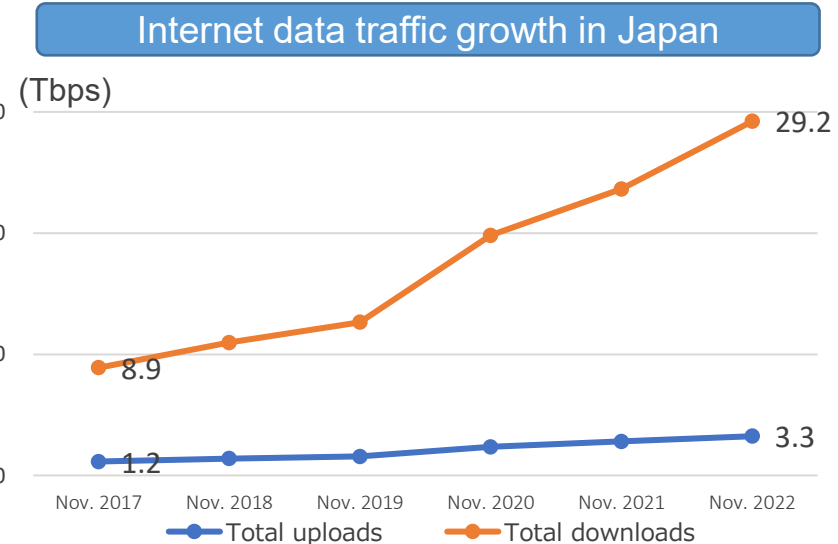
Develop products using our core polymer and metal materials and processing technology
Along with deepening these technologies, develop new products through the application and combination of the technologies



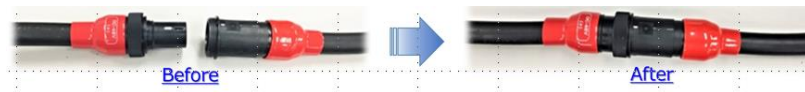
Topics (Cable with plugin connectors)

Roll out cable with plugin connectors for data centers

- The combination of FEIC cable and FEPS plugin connectors realize skill-free, efficient and quick installation
- Increase sales and contribute to data center construction demand resulting from the rapid growth in Internet data traffic in recent years
- Given the skill-free installation, these of cable with plugin connectors are expected to grow in the data center market, as well as in the disaster prevention and mitigation domain, including emergency power



Compiled by Furukawa Electric based on the tabulated and estimated Internet traffic in Japan issued by the Ministry of Internal Affairs and Communications



FEIC

Flame retardant,
flexible cable



FEPS

Plugin connector with
feature to prevent
incorrect insertion

Topics (*Rakuraku* aluminum cable)

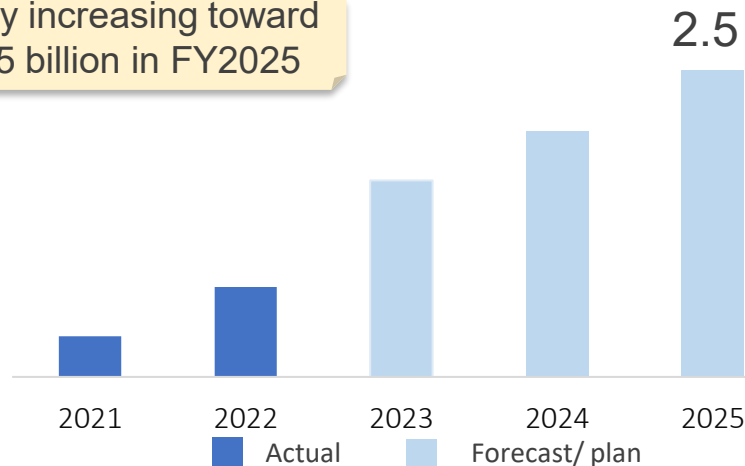
Expand *Rakuraku* aluminum cable to the renewable energy market centered on solar power stations

- Lightweight
30-50% lighter
- Easy to handle
Can be stripped with 50% less force
- Flexible
3 times more flexible



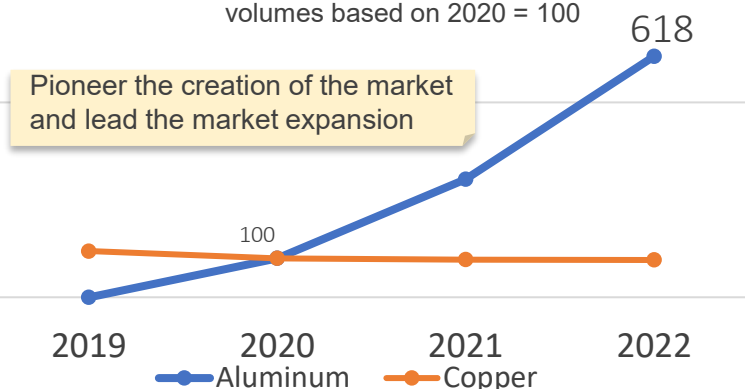
Rakuraku aluminum cable sales

Steadily increasing toward JPY 2.5 billion in FY2025



Comparison of aluminum and copper cable shipments

Comparison of aluminum and copper cable shipment volumes based on 2020 = 100



Pioneer the creation of the market and lead the market expansion

※Tabulated by Furukawa Electric based on data from the Japanese Electric Wire & Cable Makers' Association

- Increase sales in the renewable energy market by leveraging the excellent installation properties
- Expand into the roadway infrastructure domain by registering on the MLIT's New Technology Information System (NETIS)
- Steadily gaining acceptance for general buildings (Adopted for the low voltage power lines in SAGA Arena)
- Rakuraku* aluminum cable is steadily becoming more well-known in the CV cable market



Initiatives for achieving Vision 2030

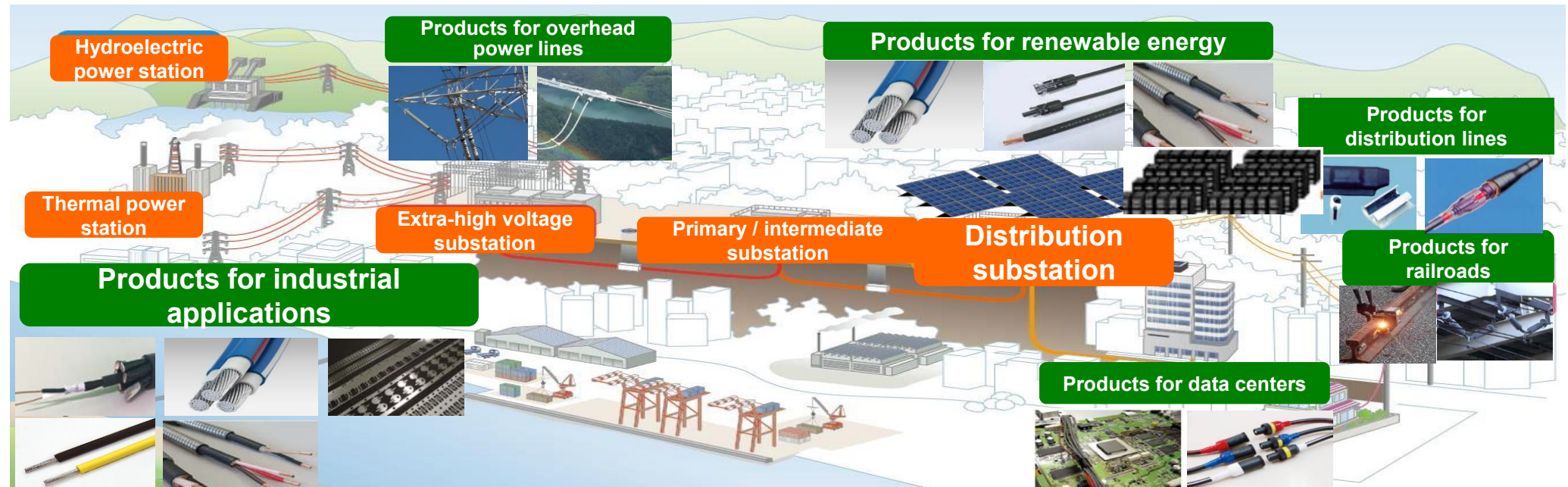
Vision
2030

Establish a business with a strong presence centered on energy

Contribute to “making people’s life safe, peaceful and rewarding” through the promotion of tougher, more advanced transmission systems that include renewable energy and the development of new products and technology for infrastructure, including disaster prevention & mitigation, telecommunications (5G) and mobility

Today

Leveraging the wide ranging markets and full product lineups in the Industrial Cable & Power Cable Accessories division, provide high value added products designed to solve social issues such as next-generation infrastructure, including for electric power, railroads and data centers, and achieve the 2025 Mid-term Plan



Thank you very much for your attention

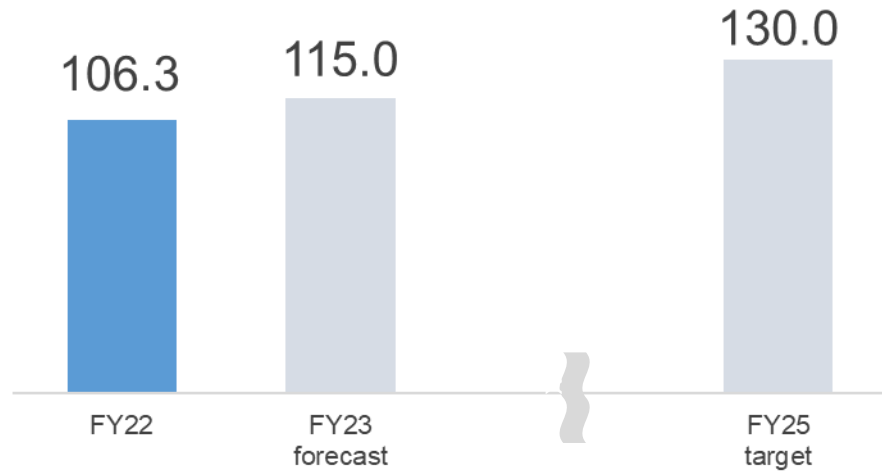
Bound to  ***Innovate***

Appendix

2025 Mid-term Plan net sales and operating income

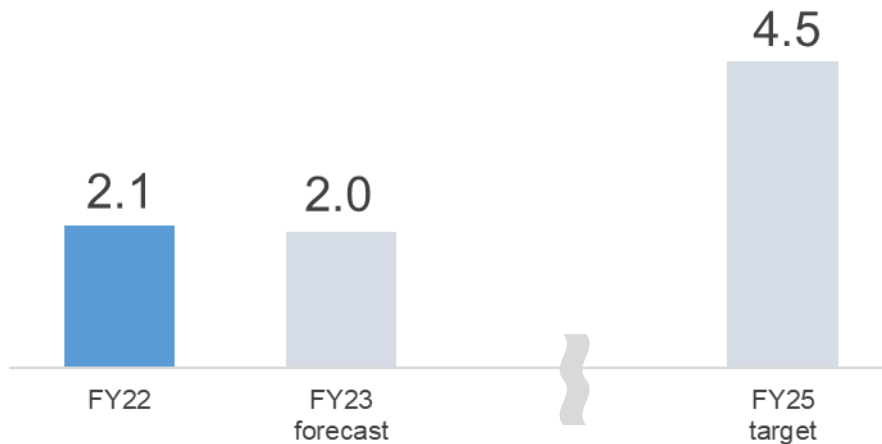
Net sales

JPY billion

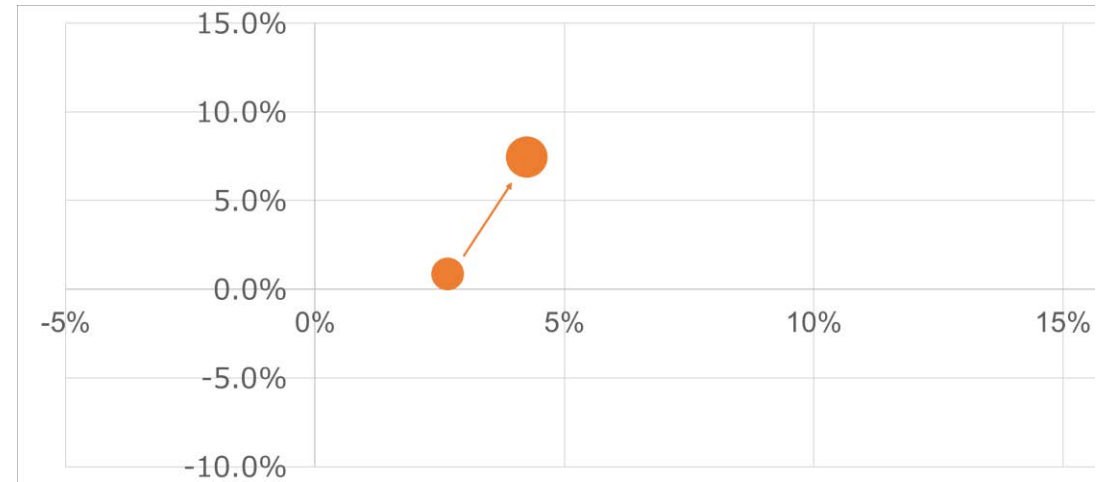


Operating income

JPY billion



ROIC (FY22 actual → FY25 target)



Vertical axis : Net sales CAGR (FY18-22→FY22-25)
 Horizontal axis: ROIC (FY22→25)
 Bubble : NOPAT (FY22→25)

- ※ Net sales and invested capital in FY24 and FY25 have been adjusted based on the FY23 forecast average market price of copper and average exchange rate
- ※ CAGR: Compound annual growth rate, ROIC: Return on invested capital (after taxes), NOPAT: Calculated as net income + interest expenses after tax in accordance with IFRS

	FY22	FY23 forecast	FY25 target
Average copper price	1,209	1,180	1,085
Average exchange rate	135	130	110



【2025 Mid-term Plan (Road to Vision 2030 -Transform and Challenge-) Basic policy】
Contribute to building safe, peaceful and rewarding social infrastructure through unique products and technology, and expand the business

- ① Safe: Become carbon neutral in 2050
- ② Peaceful: Disaster prevention and mitigation (Town planning for mitigating disasters)
- ③ Rewarding: Respond to the aging population and build next-generation infrastructure (People oriented town planning)

【External environment, strengths and issues】

External environment – Main revenue opportunities	Strengths as a division
<ul style="list-style-type: none"> • Rapidly growing demand mainly for renewable energy projects • Increasing demand for easy to install products due to the labor shortage 	<ul style="list-style-type: none"> • Extensive extra-high voltage underground and submarine cable experience in Japan and overseas • Development of technology mainly in the area of submarine cable • High value added products based on our polymers and metals technology
External environment – Main menaces and risks	Issues as a division
<ul style="list-style-type: none"> • Late to secure the personnel needed to expand the business • Changes by customers to the timing of large projects • Soaring raw material prices 	<ul style="list-style-type: none"> • Steadily acquire orders for renewable energy projects, and secure manufacturing capacity • Improve earnings in the low to medium voltage power cable business • Create a more specific plan for expanding the direct current business (wide-area submarine grid)

【Main business strategy for achieving the 2025 Mid-term Plan】

Achieve business expansion and management focused on capital efficiency in the strategic growth investments for the target segments

【Power Cable target segments】



- Japan extra-high voltage underground cable
- Japan renewable energy (submarine + underground cable)
- Overseas submarine cable (Asia)

【Industrial Cable & Power Cable Accessories target segments】

- Social infrastructure
- Japan renewable energy
- Disaster prevention and mitigation
- Next-generation infrastructure



Appendix – Products overview

	Power Cable		Industrial Cable & Power Cable Accessories	
				
Social infrastructure	●		●	●
Renewable energy	●	●	●	●
Disaster prevention & mitigation		● (Water pipes)		●
Next-generation infrastructure			●	●
Main products	<ul style="list-style-type: none"> ● Extra-high voltage and high voltage underground power cable (Cable, components, installation) 	<ul style="list-style-type: none"> ● Submarine power cable (Cable, components, installation) ● Water pipes (including installation) 	<ul style="list-style-type: none"> ● Industrial use power cable 	<ul style="list-style-type: none"> ● Overhead transmission line accessories ● Electrical power distribution accessories ● Other functional products
Main applications	<ul style="list-style-type: none"> ● Electricity grid mains ● Large factories ● Renewable energy (Land-based wind power, solar power, private transmission lines for offshore wind power) 	<ul style="list-style-type: none"> ● Submarine power cable for offshore wind power ● Water pipes for islands 	<ul style="list-style-type: none"> ● Solar power systems ● Indoor wiring in factories, buildings, etc. ● Wiring in the distribution board and control panel for factory facilities and equipment ● Wiring of mobile equipment ● Wiring of ship's onboard electrical equipment 	<ul style="list-style-type: none"> ● Electrical materials for distribution lines ● Direct & branch cable connections ● Insulation and protection for connections ● Thermal dissipation for industrial and telecommunications equipment ● Welding on automobile bodies and railroad tracks
Main customers	<ul style="list-style-type: none"> ● Electric power (transmission) companies ● Renewable energy SPC & EPC 	<ul style="list-style-type: none"> ● Renewable energy SPC & EPC ● Municipalities 	<ul style="list-style-type: none"> ● Construction contractors ● Electronic appliance manufacturers ● Railroad companies ● Shipbuilding companies 	<ul style="list-style-type: none"> ● Electric power companies ● Railroad companies ● Construction contractors

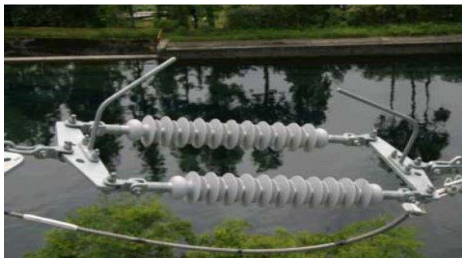
Strategic product: Polymer insulators

Features

- About 85% lighter than ceramic insulators, making them easy to install. In addition, they have excellent anti-contamination properties and do not need to be replaced as frequently, contributing to alleviating the labor shortage resulting from the aging population
- The “polymer” material does not crack easily, giving them excellent earthquake resistance and contributing to the realization of tougher social infrastructure

Examples of actual applications

- Strain insulator and insulators for jumper wires
- Railroad insulators



Strain insulator



I-string assembly for jumpers



Railroad insulator



V-string assembly for jumpers

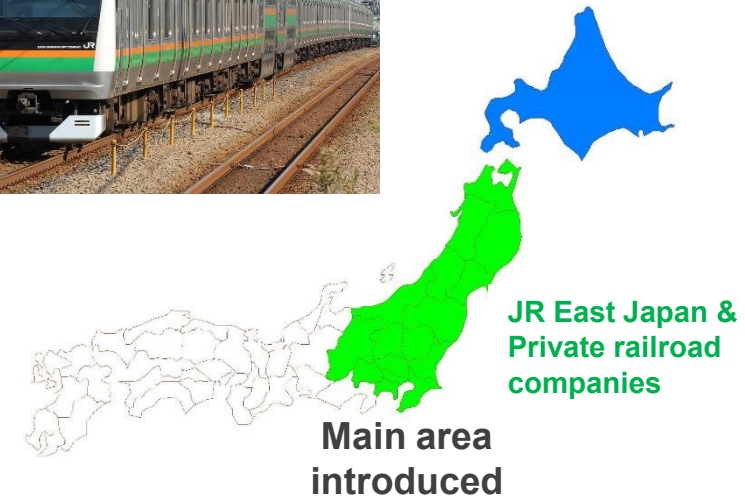
Strategic product: Copper thermite welding products for railroads

Features

- With the highly reliable, strong welds to the rail and non-use of environmentally harmful substances, it contributes to stable railroad operations, **tougher social infrastructure and becoming carbon neutral**
- Decreases the need for inspection and maintenance and reduces construction times and manpower expenses through shorter welding time, thereby contributing to alleviating the labor shortage resulting from the **aging society**



JR Hokkaido



JR East Japan & Private railroad companies

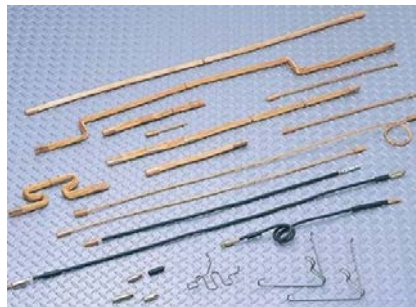
Main area introduced

Examples of actual applications

- Used on JR East Japan's conventional rail lines for over 20 years
- Plan to use for JR East Japan's Shinkansen lines



Copper thermite materials and crucible for welding



Rail bonds for use with copper thermite



Welding using copper thermite



Rail bond made using copper thermite

(reference) Monetary benefit of switching to copper thermite welding at 18,000 locations	
Cost reduction	(158) million yen/ year
Manpower reduction	(30) people/ year

Strategic product: Drykeeper® condensation prevention

Features

- Water absorbent polymer incorporated into a rubber sheet absorbs moisture
- Prevents condensation inside electrical equipment and contributes to [disaster prevention and mitigation](#) by reducing trouble involving electrical circuitry and preventing fires caused by short circuits
- Because it requires no electricity and has an outstandingly long useful life, it contributes to alleviating the labor shortage caused by the [aging population](#) through reduced installation time and maintenance frequency

Examples of actual applications

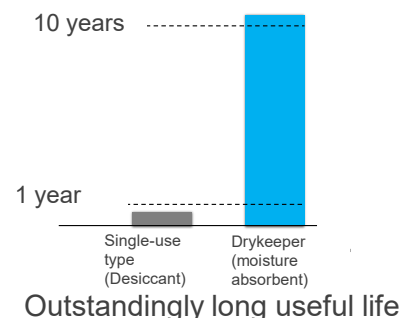
- Industrial robots
- Highway regulatory signs



Inside an electrical box



Preventing condensation



Fire retardant conduits and split conduits

Features

- Improved fire retardant properties by wrapping EFLEX conduit with a PROTECO sheet
- Threading outdoor power cable, signal cable and telecommunications cable through the fire retardant conduit contributes to [disaster prevention and mitigation](#) by stopping fires from spreading + maintaining cable function
- Remains fire retardant for the equivalent of 30 years : Contributes to alleviating the labor shortage caused by the [aging society](#) through reduced maintenance frequency

Examples of actual applications

- Railroad signals and crossings
- Substations



Conduit installation at a location where the cable rises vertically



Fire retardant split conduit