

Business Briefing

Energy Infrastructure business

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FURUKAWA ELECTRIC CO., LTD.

Forward-Looking Statements

Projections of future sales and earnings in these materials are “forward-looking statements.”

Management offers these projections in good faith and on the basis of information presently available.

Information in these statements reflects assumptions about such variables as economic trends and currency exchange rates.

Forward-looking statements incorporate known and unknown risks as well as other uncertainties that include, but are not limited to, the following items.

- Economic trends in the U.S., Europe, Japan and elsewhere in Asia, particularly with regard to consumer spending and corporate expenditures.
- Changes in exchange rates of the U.S. dollar, euro, and Asian currencies.
- Furukawa Electric Group’s ability to respond to rapid advances in technology.
- Changes in assumptions involving financial and managerial matters and the operating environment.
- Current and future trade restrictions and related matters in foreign countries.
- Changes in the market value of securities held by the Furukawa Electric Group.

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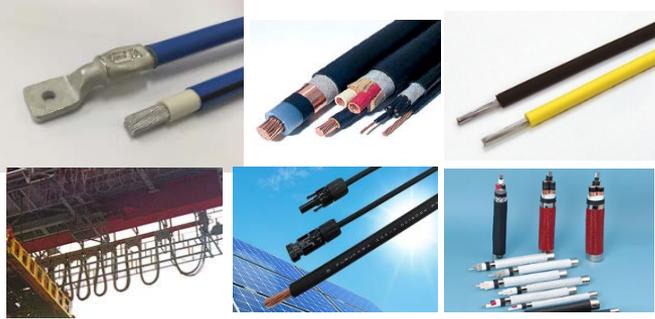
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FURUKAWA ELECTRIC CO., LTD.

- Power Cable

Products	Applications	Customers	Main regions
<ul style="list-style-type: none"> • Ultra high voltage (220kV and higher) and high voltage (66kV and higher) underground transmission cables, accessories and installation <div style="display: flex; justify-content: space-around;">   </div>	<ul style="list-style-type: none"> • Underground power lines between power plants - substations - large factories • New energy power station related (interconnections), etc. 	<ul style="list-style-type: none"> • Electric power (distribution) companies, large factories, etc. • New energy source electric power companies (SPC), etc. 	<p>Japan Asia</p>
<ul style="list-style-type: none"> • Submarine transmission cables and installation <div style="display: flex; justify-content: space-around;">   </div>	<ul style="list-style-type: none"> • Submarine power cable from new energy power stations such as offshore wind power stations (new business domain) • Interconnections between regions and to islands, etc. 	<ul style="list-style-type: none"> • New energy source electric power companies (SPC) • Electric power (distribution) companies, etc. 	<p>Japan Asia</p>

Overview of the Energy Infrastructure business – Industrial Cable & Power Cable Accessories business

Products	Applications	Customers	Main regions
<p>• Low to medium voltage power cables</p> 	<ul style="list-style-type: none"> • Indoor wiring in factories, buildings, etc. • Wiring of the distribution board/ control panel for factory facilities/equipment • Wiring of mobile equipment • Solar power systems • Wiring of ship's onboard electrical equipment, etc. 	<ul style="list-style-type: none"> • Construction contractors • Electronic appliance manufacturers • Railroad companies • Shipbuilding companies, etc. 	<p>Japan</p>
<p>• Electric power distribution accessories and overhead transmission line accessories</p> 	<ul style="list-style-type: none"> • Electrical materials for distribution lines • Direct and branch cable connections • Insulation and protection for connectors • Electric power supply to railroad cars, etc. 	<ul style="list-style-type: none"> • Electric power companies • Construction contractors • Railroad companies, etc. 	<p>Japan China Southeast Asia</p>

【 I 】 Mid-term plan for the Energy Infrastructure business

【 II 】 Review of FY2018

【 III 】 Market overview

Targeted markets in the Power Cable business

Market overview in the Power Cable business (Japan underground power cable, Japan new energy, overseas)

Market overview in the Industrial Cable & Power Cable Accessories business (low to medium voltage power cable)

【 IV 】 Energy Infrastructure strategy

Power Cable strategy

Capital investments

Increase installation capacity

Technology development

Industrial Cable & Power Cable Accessories strategy

Initiatives for the low to medium voltage power cable business

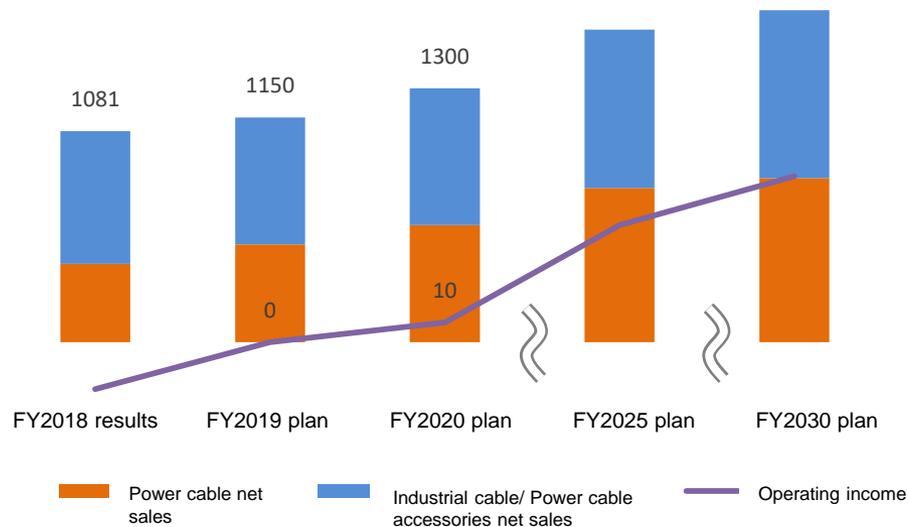
【 I 】 Mid-term plan for the Energy Infrastructure business

Mid-term plan for the Energy Infrastructure business

Make the Energy Infrastructure business a pillar of the company

- Expand the business scale at least 1.5 times
- **FY2019: Achieve an operating profit (Secure a foundation for profits)**
- **FY2020: Operating income of JPY 1 billion (Advance to the growth phase)**
- **FY2025: Operating income of over JPY 5 billion**

Net Sales and Operating income forecast (Units: 100 million yen)



- **Power Cable business**
Expand the business foundation mainly in the new energy field
Ratio of power cable sales within the Energy Infrastructure business
About 40% (FY2018) ⇒ 50%
- **Industrial Cable & Power Cable Accessories business**
Thoroughly select and focus, and improve profitability
Focus on and specialize in high value added and functional products such as aluminum CV

【Ⅱ】 Review of FY2018

FY2018 results in the Energy Infrastructure business (Units: 100 million yen)

	Q1	Q2	Q3	Q4	Full year
Net sales	230	253	297	301	1,081
Operating income	▲11	▲27	3	13	▲24

- **Organized the business portfolio**

- Completed the low margin overseas underground power cable projects
- Accepted orders with a thorough focus on profitability
- Promoted sales of functional power cable

- **Improved cable productivity and increased installation capacity**

- **Accelerated the decision making process by strengthening the central management of sales and production information**

- ※Quickly respond to changes in the market environment resulting from the increase in large new energy projects

- **Restructured ShenYang Furukawa Cable Corp., LTD. (subsidiary in China)**

- Thoroughly reduced the workforce and costs
- Executed measures to increase orders (including cooperation with the Furukawa Electric Sales Division)
- Merged with the Furukawa Electric power cable accessories subsidiary located in the Shenyang district

Achieved profitability in the 2nd half of FY2018

Steadily capturing underground power cable demand in Japan and increased earnings from high value added accessories contributed to this result

【Ⅲ】 Market Overview

Targeted markets in the Power Cable business

Market overview in the Power Cable business: Japan underground power cable, Japan new energy, overseas

Market overview in the Industrial Cable & Power Cable Accessories business: Low to medium voltage power cable

Targeted markets in the Power Cable business

Maintain the existing strategy

Narrow down the fields and concentrate the efforts on particular fields!

- **Japan ultra high voltage underground power cable**
 (Trunk line projects, such as the replacement of OF cable)
 Business strategy: Secure a stable business foundation
- **Japan new energy - submarine + underground power cable**
 Business strategy: Capture the demand for submarine power cable for the booming offshore wind power
- **Overseas submarine power cable** (Asian market)
 Business strategy: Secure future growth opportunities

【2025 targets】

Share of the Japan ultra high voltage underground power cable market

At least 50%

Share of the Japan submarine power cable market

At least 50%

Share of the Asia submarine power cable market

At least 30%

Goal: **Main player in Asia**

Market overview in the Power Cable business **FURUKAWA ELECTRIC**

– Japan underground power cable

Respond to increasingly distributed power generation following the introduction of new energy (power generation locations will become more distributed, such as offshore wind power)

Secure stable electric power supply (prevent blackouts)

Increasing needs to expand and toughen the electric power network (NW)

NW policy

Increasing needs to expand and toughen the NW

Reestablish a NW policy that aims to achieve both resilience and expanded use of renewable energy

Strengthen and expand the use of regional interconnections (also consider how the expenses will be shared)

Expand the NW through the creation of supply and demand procurement markets

Consider the format for a NW that is suited to distributed energy

Improve the wheeling system directed toward the next generation NW

Achieve both “promote further increases to efficiency” and “secure flexible next generation investments”, including the connection of renewable energy

Format of a wheeling system that will contribute in response to disasters

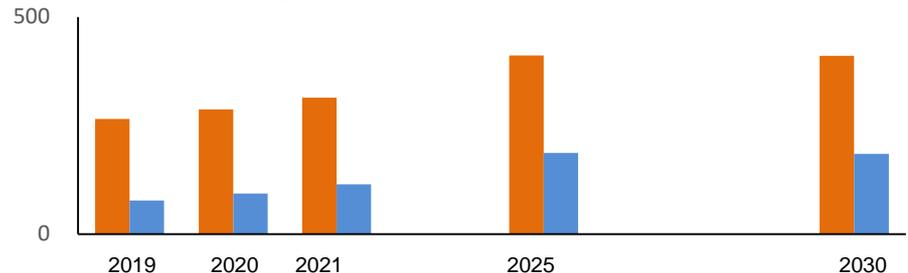
- Begin serious study of strengthening regional interconnections and preparing & strengthening the electric power network
- Ultra high voltage demand will expand to about JPY 20 billion/year by 2025 (Presently about JPY 10 billion)
- Installation capacity is tight, including at competitors

[Furukawa Electric’s position]

- One of the two Japanese manufacturers of ultra high voltage and high voltage power cable
- Highly trusted for the performance, quality and supply system

Source: Fundamental revision of the FIT program and reestablishment of the renewable energy policy
April 22, 2019 Agency for Natural Resources and Energy

Japan underground power cable demand forecast (Units: 100 million yen)



※Demand forecasts created by Furukawa Electric

■ Total High voltage / ultra high voltage demand ■ ultra high voltage only

Market overview in the Power Cable business

– Japan new energy

Market will greatly expand over the medium to long-term mainly in the area of submarine cable for offshore wind power

(Annual market growth of about 10%)

From 2019, large scale projects will commence, and the market will expand to over JPY 20 billion in 2025

[Furukawa Electric's position]

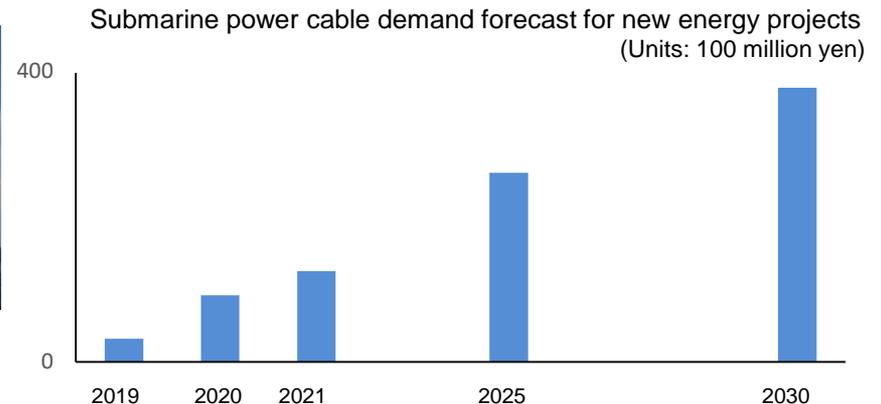
- Multiple front runner experience in new energy projects (including demonstration tests)
 - Have received requests to cooperate in power plant project plans from the initial phase
- Preceded other companies in starting to gain experience
 - First in Japan to deliver a large scale operational commercial submarine power line for a new energy project
 - Expect to secure at least 50% of the delivery share over the next 3 years
- Focus efforts on expanding the business foundation directed towards 2025
 - Continue to increase submarine power cable manufacturing capacity



Rokkasho Solar Park
First new energy project in Japan to use 154kV



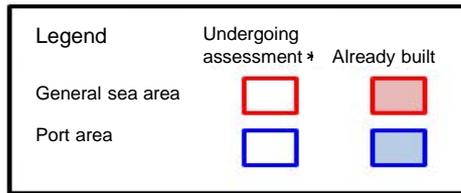
Fukushima floating offshore wind farm demonstration research



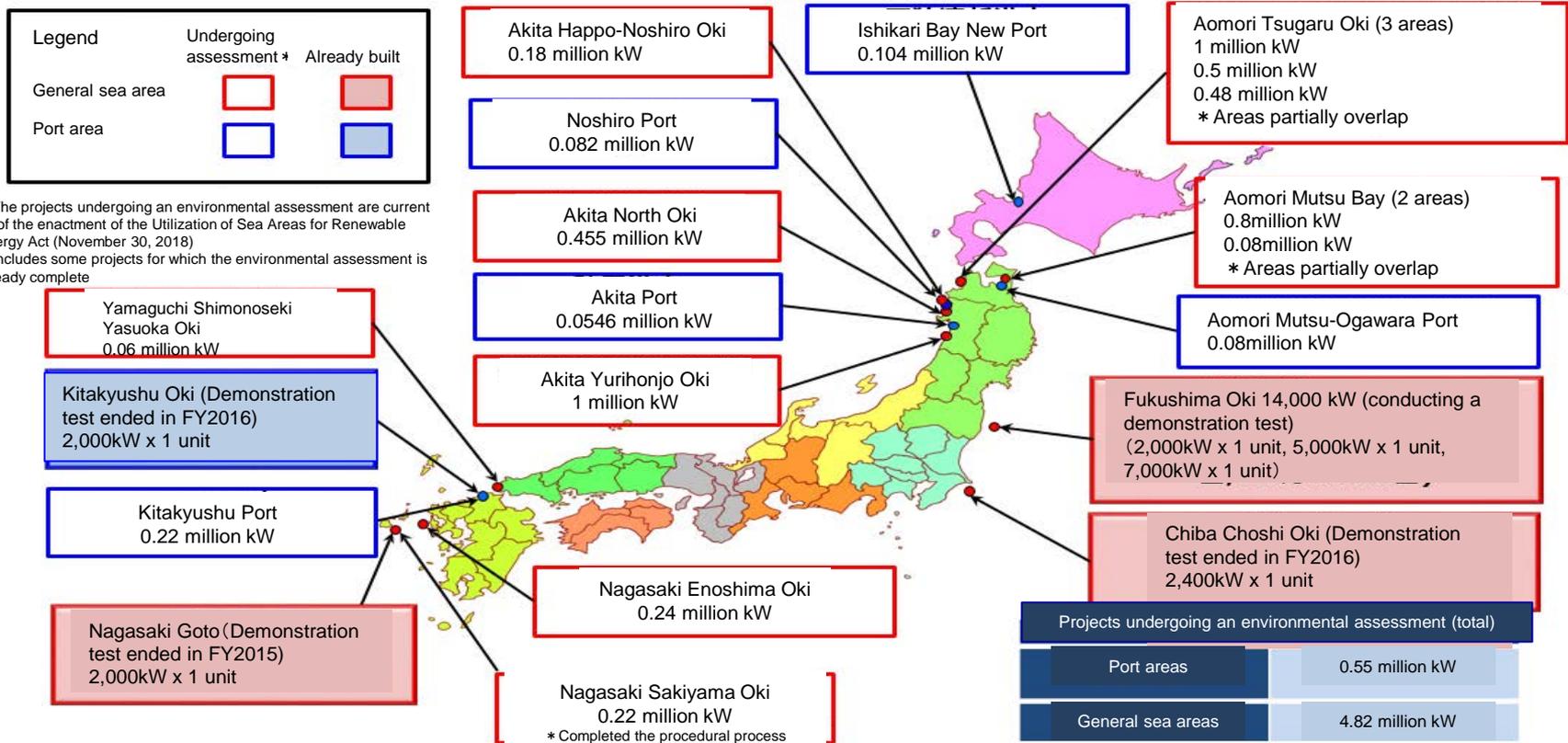
※Demand forecasts created by Furukawa Electric

(Reference) Status of and plan for introducing offshore wind power

● The current status of the projects in Japan and the plans undergoing an environmental assessment (*including some that are already finished) are as follows. (Amount already introduced in about 20,000kW, and the amount undergoing an environmental assessment is about 5.4 million kW)



* The projects undergoing an environmental assessment are current as of the enactment of the Utilization of Sea Areas for Renewable Energy Act (November 30, 2018)
 * Includes some projects for which the environmental assessment is already complete



Source: Created based on the electric power station environmental assessment information service (Homepage of the Ministry of Economy, Trade and Industry)

* In the port areas, there are projects in which the harbor management organization decided the business operator (0.22 million kW)
 * In the general sea areas, some of the areas overlap

Source: Fundamental revision of the FIT program and reestablishment of the renewable energy policy April 22, 2019 Agency for Natural Resources and Energy

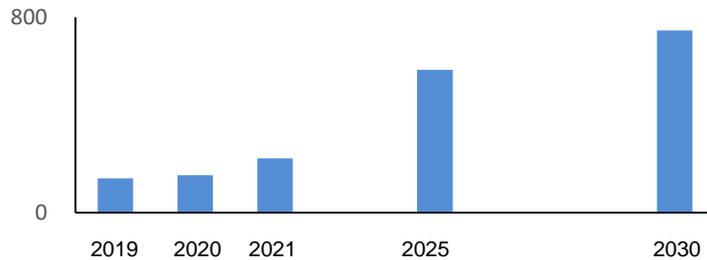
November 2018: Act of Promoting Utilization of Sea Areas in Development of Power Generation Facilities Using Maritime Renewable Energy Resources was enacted ⇒ Provide a policy boost for offshore wind power plans

– Overseas

Asia submarine cable

Demand mainly in the area of submarine power cable for offshore wind power is expected to rapidly expand in the mid-2020s

Asia submarine power cable demand forecast
(Excluding China and Japan / Units: 100 million yen)



※Demand forecasts created by Furukawa Electric

Major European cable manufacturers (Prysmian, Nexans, NKT), as well as South Korean and Chinese manufacturers, have entered the market

[Furukawa Electric's position]

Continue the capital investments aimed at increasing manufacturing capacity and supporting longer lengths of submarine power cable (reduce costs and increase quality)

⇒ Fully contribute to earnings from FY2022

Asia underground power cable

Backed by robust electric power demand in each country, annual growth is forecast to exceed 5%

⇔ **In addition to European, South Korean and Chinese manufacturers, competition is expected to increase with the local cable manufacturers**

[Furukawa Electric's position]

Use past experience (cable & installation quality), selectively accept orders with a focus on profitability and start utilizing the cable manufacturing location in China (ShenYang Furukawa Cable Corp., LTD.): Out-Out strategy

Firm demand from the Tokyo Olympics and redevelopment projects

Japanese Electric Wire & Cable Makers' Association FY2019 forecast: 0.9% increase compared to FY2018, and 1.6% increase in the construction and electrical contractors market.

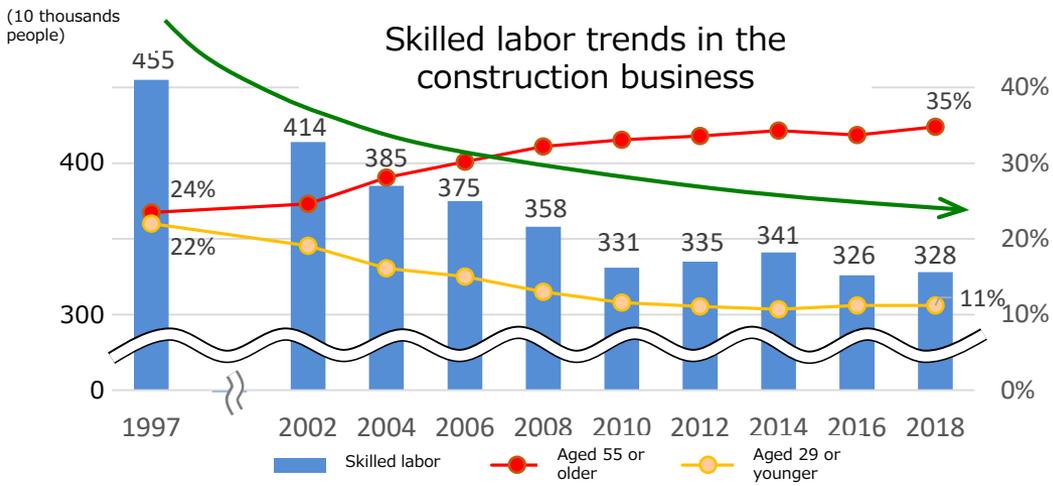
- Slight growth in 2016-2018 due in part to pushing the project construction period back.
- In 2019, demand will be firm from continued Tokyo Olympics and redevelopment project demand, as well as expanded installation of air conditioning at elementary and junior high schools.
- For 2020-2022, demand is expected to continue at a certain level.



Source: Japanese Electric Wire & Cable Makers' Association "Statistics" and "Power cable demand forecast"

Severe labor shortage

After peaking at 4.55 million people in 1997, the workforce declined by 28% in 2018. Also, the workforce is aging with 35% aged 55 or older (11% are 29 or younger), and passing on the skills to the next generation is an issue.



Source: Ministry of Internal Affairs and Communications "Workforce survey" (calendar year averages)

[Furukawa Electric's position]
Provide products with excellent installation features as a measure against the labor shortage

⇒ Aluminum conductor CV cable
Focus efforts on promoting sales of "Rakuraku cable"
(Lightweight, easy, flexible)

【IV】 Strategy in the Energy Infrastructure business

Power Cable strategy

Capital investments

Increase installation capacity

Technology development

Industrial Cable & Power Cable

Accessories strategy

Promote sales of functional power cable

Capital investments (Ichihara Works)

Invest a total of JPY 15 billion over 8 years (2018-2025)

☆ **Submarine power cable related (about JPY 5 billion)**

Increase submarine power cable manufacturing capacity ⇒ Increase manufacturing capacity 2.5 times (Complete the first increased investments in FY2019)

Support long length submarine cable manufacturing (Increase quality reliability and improve cost competitiveness by reducing the number of joints)

⇒ Triple the maximum shipping length

☆ **Productivity improvements, etc. (about JPY 10 billion)**

Restart the No. 2 power cable manufacturing plant (FY2019): Establish a dedicated high voltage production line

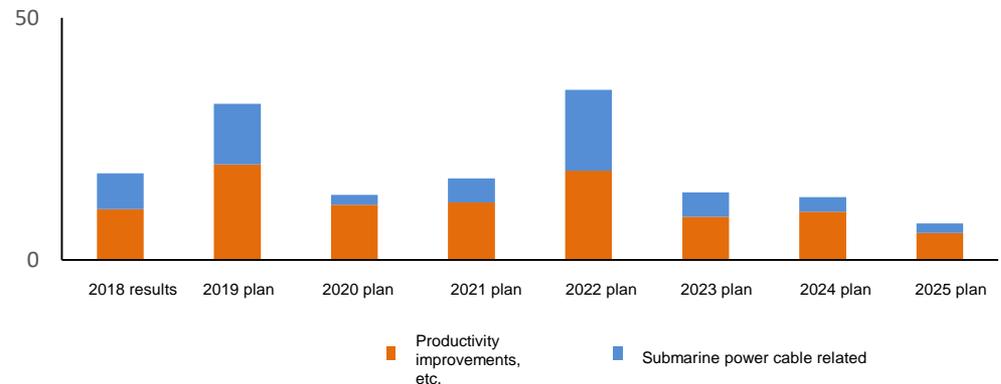
Continue the investments in facility renewal and systemization, and more than double productivity



Ichihara Works (power cable manufacturing)

Major planned capital investments at the Ichihara Works by year

(Units: 100 million yen)



Power Cable strategy

– Increase installation capacity

Increase installation capacity

Double installation capacity by the end of FY2020 (compared to FY2017)

☆ Continuing to increase the number of employees (new hires, mid-career) and expand the cooperation with affiliated companies

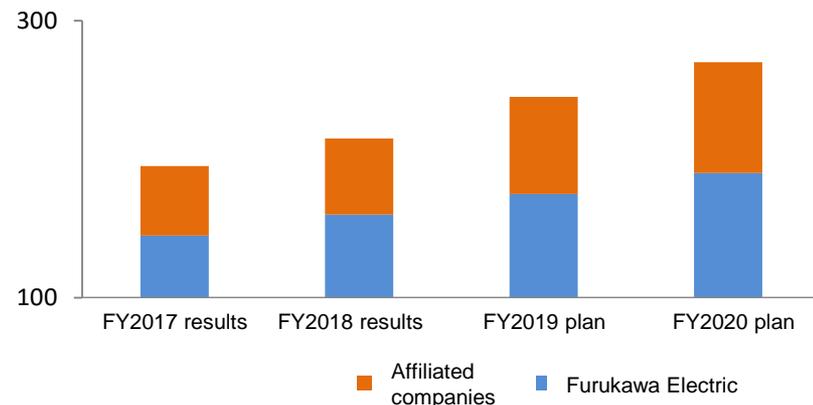
At the same time, working to increase the skills of current employees, and contributed to capturing underground power cable demand in Japan during the 2nd half of FY2018

Definitely capture the ultra high voltage underground power cable demand (cable, accessories, installation), which is expected to grow in the future



DVD showcasing installation work
Furukawa Electric is actively conducting recruitment activities for the installation division, including visiting schools around the country.

Installation personnel trends (Units: people)



Development of next generation cable

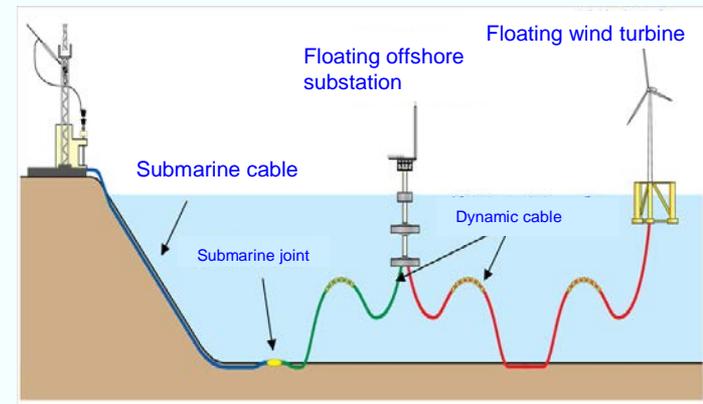
☆ Development of direct current/ultra high voltage/high capacity power cable technology

☆ Development of elemental technology for submarine power cable

Utilize Furukawa's strengths in metal/polymer material technology
Acquiring international standards certification for a direct current cable
Accelerate development of submarine power cable that conforms to international standards (launch onto the market from FY2022)

Received an order from the England based Carbon Trust for the development of ultra-high voltage dynamic submarine cable for floating offshore wind power plants

Concerning the “floating offshore wind power plants” that are expected to become more prevalent in the Asian market in the future, develop 130kV – 250kV ultra-high voltage dynamic submarine power cable that will transmit electric power from a floating substation to land, and aim to further contribute to the renewable energy field. Furukawa Electric's performance during the Fukushima offshore wind farm demonstration test was evaluated highly and led to the current order.



– Technology development ②

Development of cable manufacturing technology (Converting manufacturing to a single process)

☆ Improve competitiveness and strengthen earnings capability by increasing productivity and production capacity

Introduce development results as they become ready from FY2019 / Target completion: FY2025

Development of joint components with excellent installation properties

☆ Secure superiority through the development of new joint components for ultra high voltage

Target development completion: FY2025 ⇒ Introduce in the Japanese market first
Contribute to further increasing installation capacity

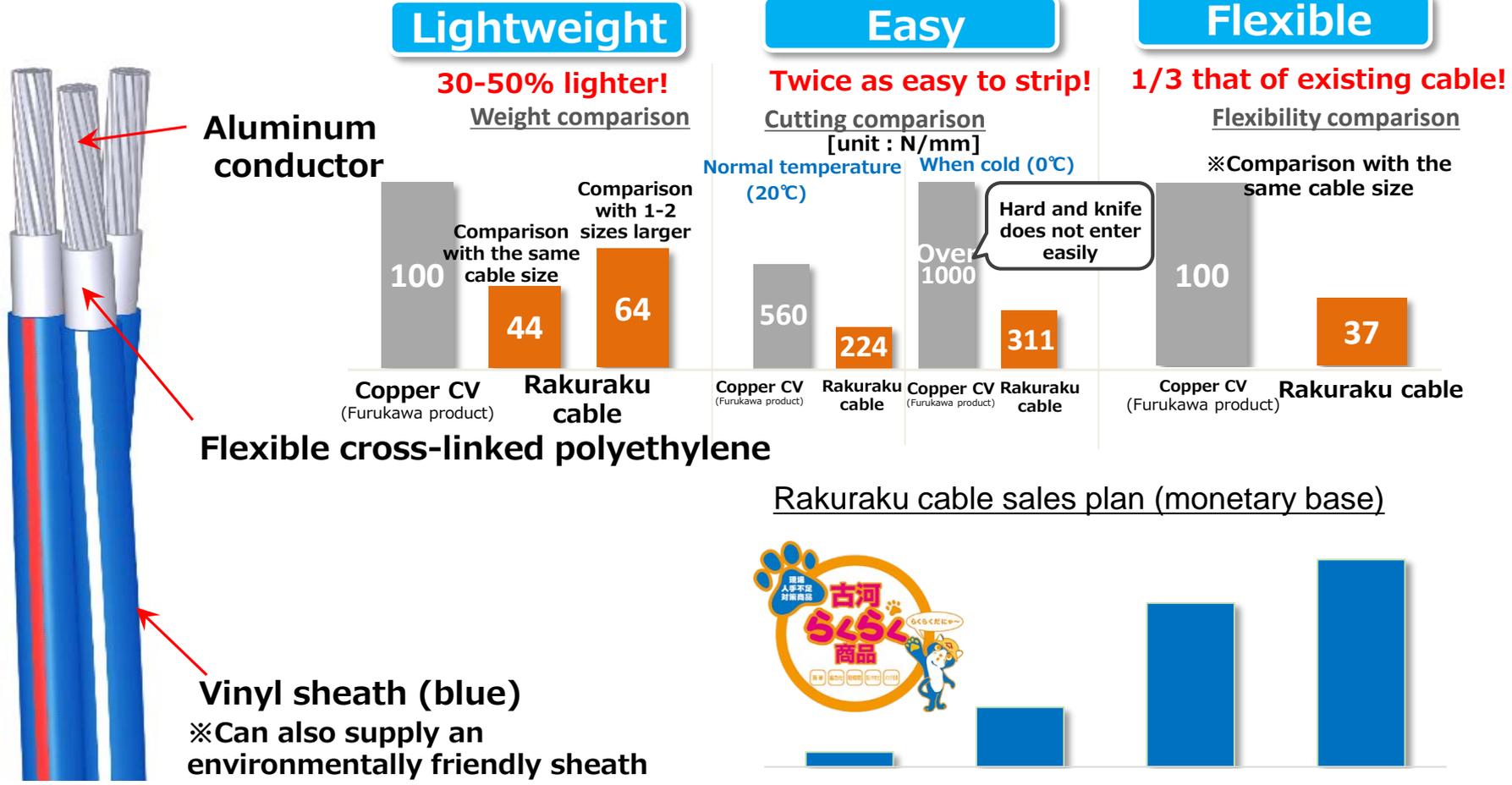


Ultra high voltage cable development test

- Promote sales of functional power cable①

Features of the Rakuraku cable

- High performance low voltage aluminum conductor CV cable that is lightweight and flexible
- Realize lighter weight and lower cost through the use of an aluminum conductor



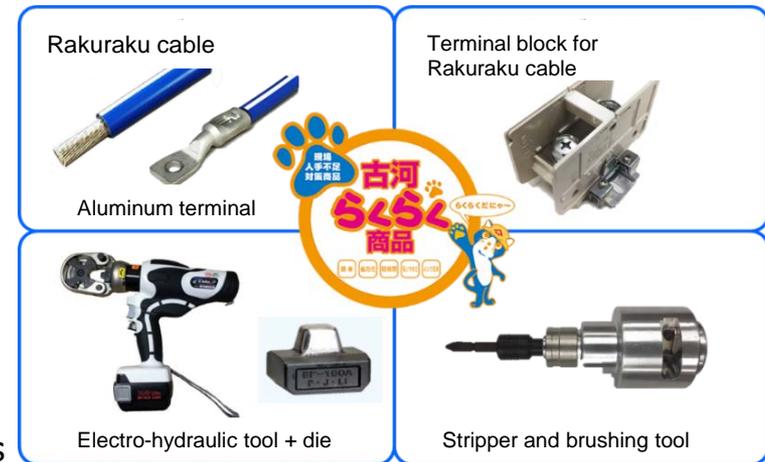
– Promote sales of functional power cable ②

Promote sales of intangible items that includes terminals, tools and technical instruction

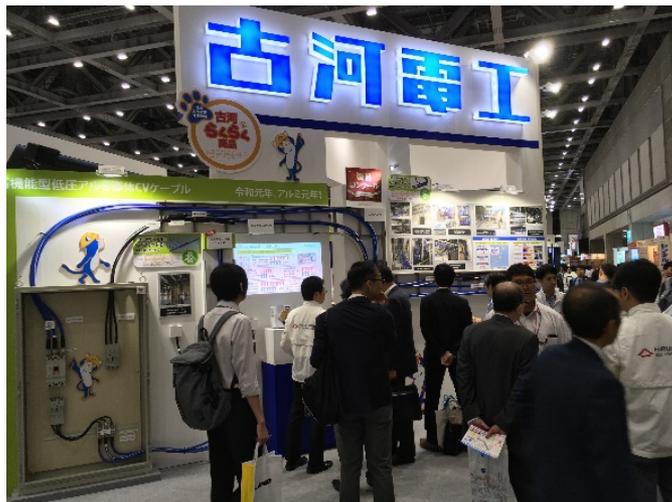
In addition to the cable, propose packages that include specialized terminals, terminal blocks and tools for installation.

Also, provide the following follow-up.

- Technical support, such as selecting the cable size
- Hold instruction sessions on how to install the terminals
- Loan out specialized tools



Provide specialized terminals and tools as part of a package



May 22-24, 2019 @ International Exhibition Center

Participated in the JECA FAIR

- Attached and exhibited on a rack that made it easy to envision how it is actually used. Also, prepared space to actually experience the lightness and flexibility of Rakuraku cable.
- Played a video that included scenes of actual use, and displayed multiple picture panels showing installation in various locations.
- During the exhibition, 2,309 customers visited the booth. (Total cumulative visitors to the exhibition: 104,683 people)

Thank you very much
for your attention.