

# IR Business Briefing

## Energy Infrastructure Business

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## 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.

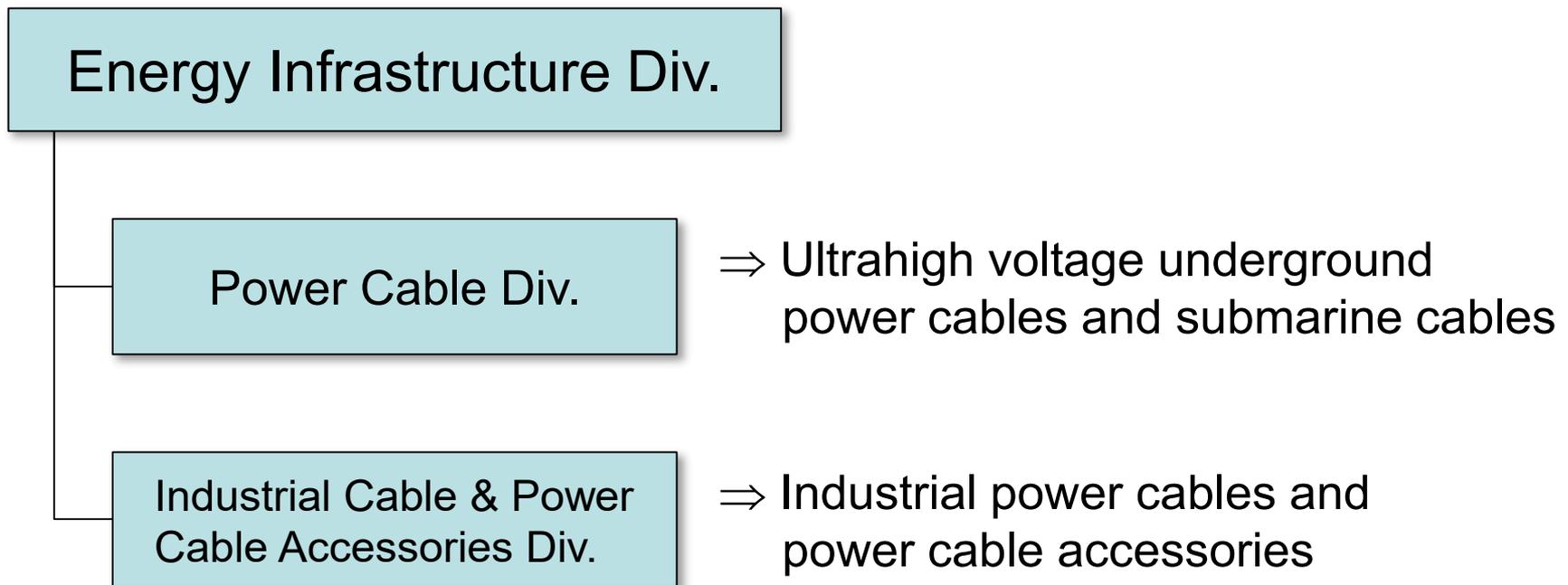
- Economic trends in the U.S., Europe, Japan and elsewhere in Asia, particularly with regard to consumer spending and corporate expenditures.
- Changes in exchange rates of the U.S. dollar, euro, and Asian currencies.
- The Furukawa Electric Group’s ability to respond to rapid advances in technology.
- 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.

Due to the above factors, actual sales, earnings, and other operating results may differ significantly from Looking Statements in these materials. In addition, following the release of these materials, Furukawa Electric Group assumes no obligation to publicly announce any revisions to forward-looking statements in these materials

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The Energy Infrastructure Division was established with the aim of enhancing collaboration and integrating functions of the closely linked Power Cable Division and Industrial Cable & Power Cable Accessories Division



## Energy Infrastructure Division

Business	Customers	Main uses
<b>Power Cables</b> Over 66kV underground & submarine power cables, accessories and installation	Power companies, IPP, large plants, etc.	<ul style="list-style-type: none"> <li>• Underground power lines between power stations, substations, large plants, etc.</li> <li>• Offshore wind farms, island interconnection*</li> </ul>
<b>Industrial Cable &amp; Power Cable Accessories</b> Under 33kV power cables	General plants/building owners, railroad companies, etc.	<ul style="list-style-type: none"> <li>• Indoor wiring in general buildings and facilities</li> <li>• Control circuits in plant facilities and equipment</li> <li>• Railroads (supplying power to trains)</li> </ul>
Under 33kV power distribution accessories, overhead power transmission accessories	General plants/building owners, railway companies, power companies, etc.	<ul style="list-style-type: none"> <li>• Wiring for switchboards, control panels, etc.</li> <li>• Electrical facility materials for power distribution lines</li> </ul>

\*Interconnection for power supply to remote islands, or power supply from power station in remote islands

- ✓ Both in Japan and overseas, demand for power cables (underground power cables for ultrahigh voltage and submarine cables) is expected to increase in the mid- to long-term.

## Japan

- Installing new facilities and upgrading old facilities of power companies
- Installing underground cables to newly constructed power plants following electricity deregulation
- Installing submarine power cables to offshore wind farms

## Overseas

- Installing underground power cables due to advance of urbanization
- Installing submarine power cables to island interconnection systems and offshore oilfields
- Installing submarine power cables to offshore wind farms

- ✓ Domestic demand for industrial power cables and power cable accessories is strong.

## Existing domestic market

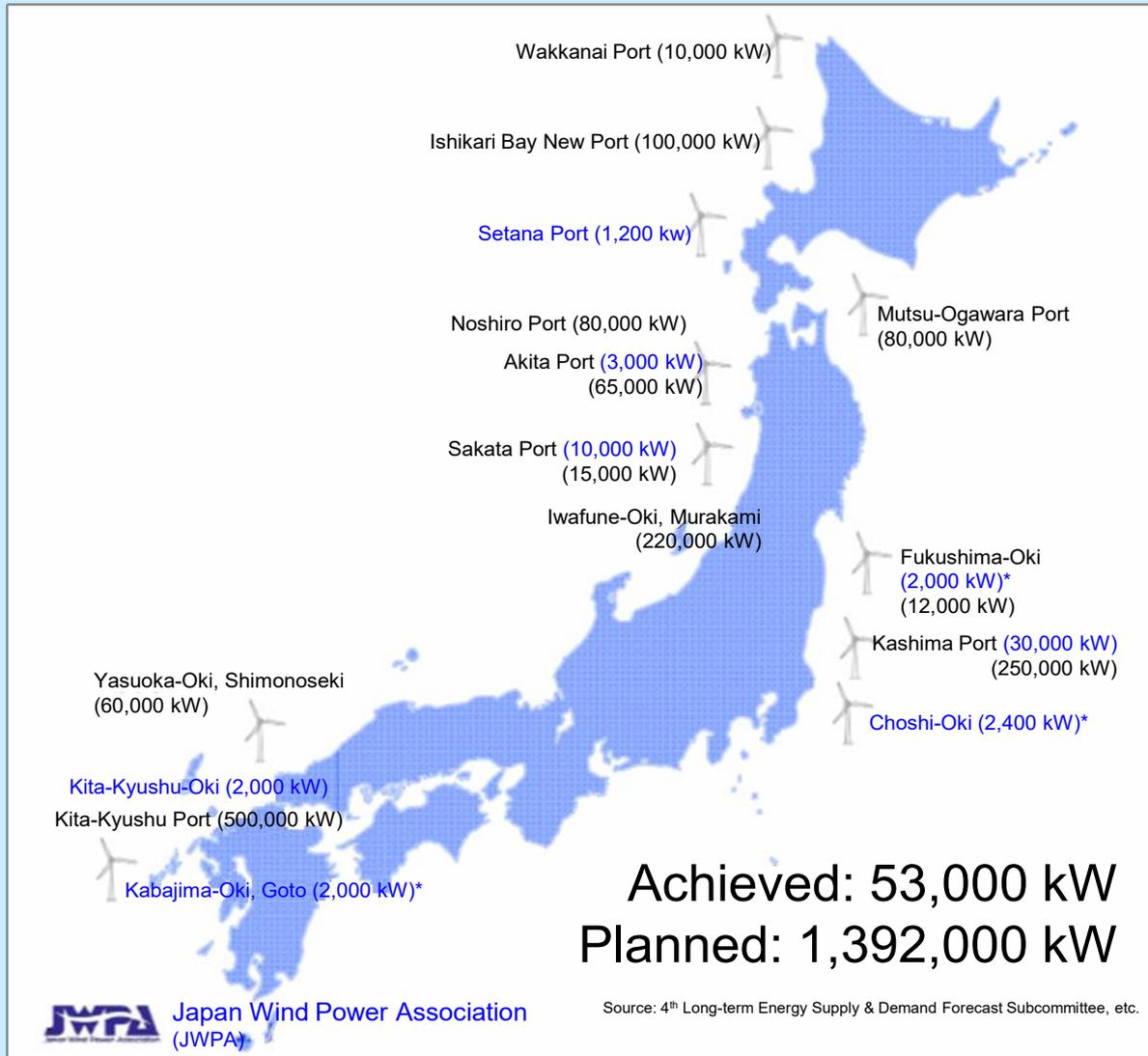
- Demand has recovered to the levels before Lehman Brothers bankruptcy
  - Slight increase due to the Tokyo Olympics, anti-seismic investment, city-center redevelopment
- ⇒ Labor shortage in the construction industry is an issue

## Growing domestic market

- Electricity deregulation and unbundling of generation and transmission (demand for increase and replacement of interconnection cables)
- Strong demand for new energies and railroads
- An increasing shift to aluminum conductors

# Market Environment Cases (Power Cable Business)

## - Offshore Wind Farms



Display: Toward Increased Installation of Wind Farms, JWPA, Feb. 29, 2016

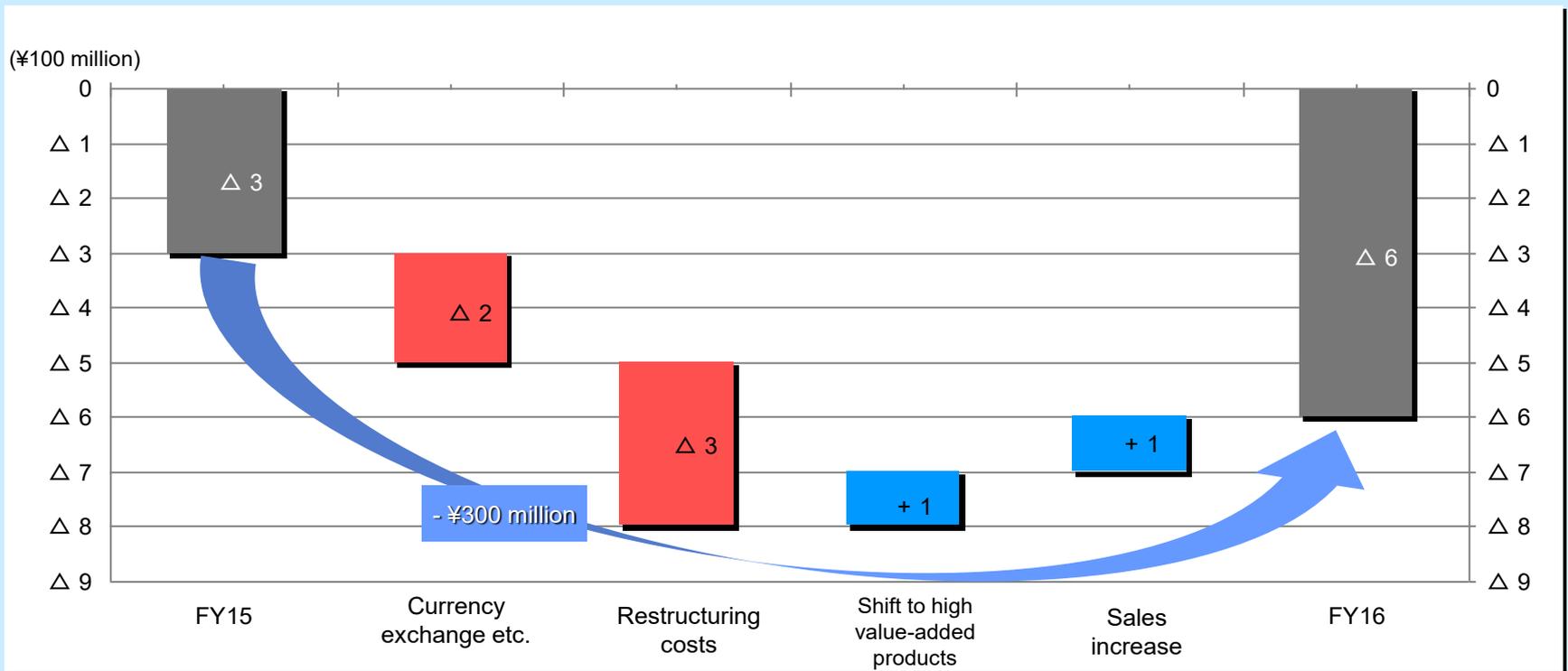
## Power cable business

- ✓ Propose worthwhile solutions combining our engineering and superior technologies
  - Focus on changes in market environment

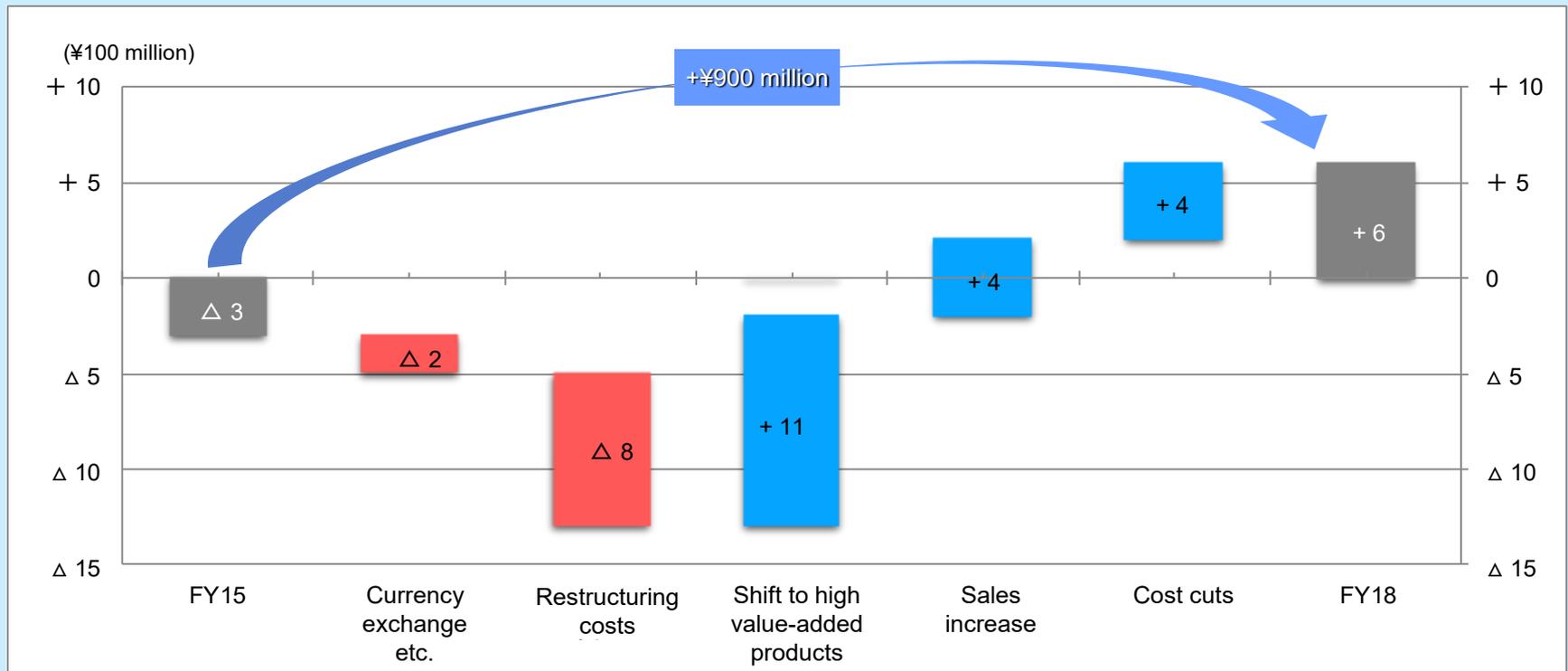
## Industrial power cable and accessories business

- ✓ Shift to high value-added products and optimum allocation of management resources

## Energy Infrastructure Division



## Energy Infrastructure Division



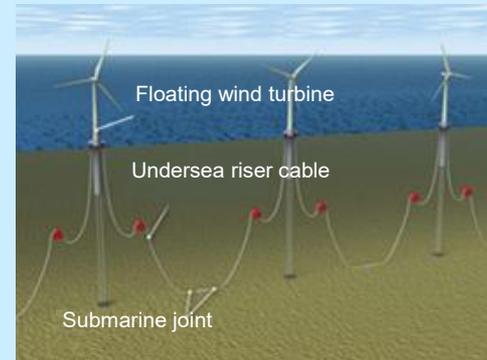
Proposing products, services and solutions that customers recognize as being valuable

Supporting overseas markets  
& Japanese new energies

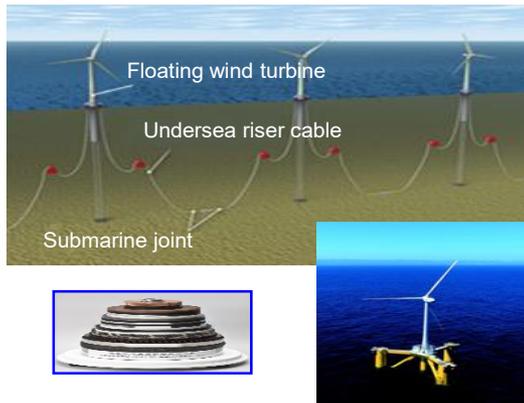
## Power cable business

- ✓ Submarine cables for offshore wind power
- ✓ DC XLPE cables
- ✓ Engineering business

Submarine cables for offshore wind power



## Submarine cables for offshore wind power



### Where used/Demand

- Offshore wind turbines – Offshore substations – Onshore substations
- **Increased demand in Japan and the rest of the world**

### Features

- **Requires high-level development capability, production capability, installation capability, (laying, connecting) and knowhow**

### Our company's situation

- **World's first successful connection of a floating wind turbine and substation using a dynamic riser cable (Fukushima Floating Offshore Wind Farm Demonstration Project)**

## DC XLPE cables

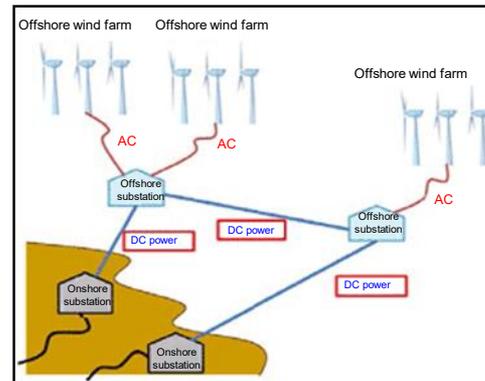


Diagram of multi-terminal DC power system (Source: NEDO)

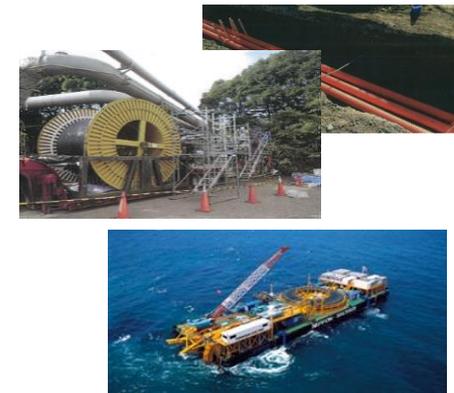
### Where used/Demand

- **Long-distance power transmission** such as intercontinental and international connections, offshore wind power, solar power, etc.
- Growing demand for **European submarine cables**
- Growing market expected in **new energy business** even in Japan

### Advantages

- **Smaller loss** than with AC transmission
- Enables **large capacity** and **long distance transmission**
- More **environmentally friendly** than conventional OF cable, which contained oil

## Engineering business



### Advantages of our company

- **Biggest track record** in Japan and the world
- Carry out **optimal electric route design from implementation planning**, manage construction work ourselves
- **Can design and install submarine power systems from offshore wind turbines to onshore connection points**
- Have construction bases in **Taiwan, Singapore and India**



- With our rich experience and track record, we can **make proposals from the design stage**
- Can meet rising demand in the Middle East, Southeast Asia, etc.

Proposing products, services and solutions that customers recognize as being valuable

Industrial power cable and accessories business

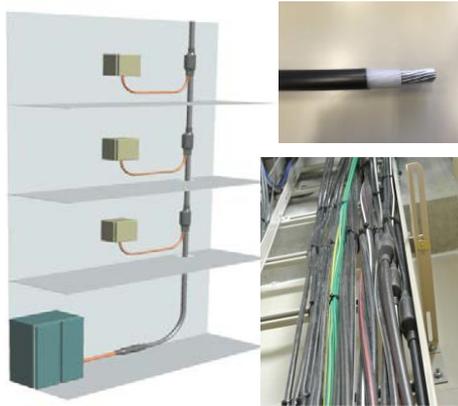
- ✓ Aluminum branch for buildings
- ✓ LMFC
- ✓ High-performance power transmission and distribution accessories

Labor saving  
in construction

Reduction  
in cost



## Aluminum branch cables for buildings



### Where used

- Main power source cables in buildings

### Features

- Factory molding of a branch line to a trunk cable
- **Lighter** than copper cables
- Aluminum more **stable in price** than copper



- Superb **workability**
- **Reduction in cost**

## EM-LMFC (cables for electrical equipment)



Easy wiring even where there is narrow space or congested wires



### Where used

- Internal wiring of various distribution switchboards
- Generator internal wiring
- Mobile base station wiring

### Features

- Larger allowable current than IV, enables **1 size reduction**
- Excellent **flexibility** (twice that of IV)



- **Lightweight, compact boards**
- **Reduction in cost**

## High-performance power transmission accessories



### Products

- Loose spacers
- Wedge-shaped type dead end clamps
- Christmas tree type dampers, etc.

### Where used

- Transmission lines
- Transmission/transformer pylons, utility poles

### Features

- **Lighter** than other companies
- Superb **workability**

## Energy Infrastructure Division

### Japanese market

Meet rising demand due to recovering investment in maintenance and renewal at power companies and growing investment in establishing new power producers and suppliers, by strengthening our customer proposal and engineering capabilities

### Overseas markets

Meet rising demand in the Middle East, Southeast Asia, etc. by proposing solutions that utilize our engineering strengths

# Roadmap for Power Cable Business

	2015	2016	2017	2018	2019	2020	2021 -2025	2026 -2030
Foundation established	Viscas restructuring & new system construction							
Domestic submarine cables	Enhance sales of new energy submarine cables			Deliver new energy submarine cables				
			Capture demand for installing new facilities and upgrading old facilities of power companies					
Overseas submarine cables	Enhance sales of submarine cables in SE Asia							
			Deliver submarine cables in SE Asia					
			Enhance sales of DC submarine cables in Europe					
Overseas underground cables	Build track record in Middle East and SE Asia regions							

### Customer proposal capability enhancement

- In response to the diversification of power producers as electricity deregulation proceeds, we will offer products and services that meet customer needs through the integrated operation of sales and technology divisions

### Engineering capability enhancement

- We will further improve our ability to handle onshore and offshore projects through the integrated operation of domestic work and overseas work

### Production capability enhancement

- Comprehensively demonstrate Furukawa Electric's material procurement capability and manufacturing ability
- Strengthen synergy with Shenyang Furukawa Cable through personnel exchanges and shared production

## Furukawa Electric

Develop energy infrastructure business  
by combining management resources

Customer proposal  
capability enhancement

Response to diversification of power producers

Engineering capability  
enhancement

Integrated operation of domestic/overseas engineering

Domestic  
engineering

FEES

FEEI

Taho  
Engineering

Production  
capability  
enhancement

Technical, procurement & manufacturing capabilities

Ichihara Cable Plant

Shenyang  
Furukawa Cable

Furukawa Electric  
Industrial Cable

Hiratsuka Cable  
Accessories Plant

Furukawa Electric  
Power Systems