

# First half overview and initiatives for Second half of FY2017

President  
**Keiichi Kobayashi**

November 2, 2017  
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.

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 announce any revisions to forward-looking statement in these materials

## Copyrights

Furukawa Electric Co.Ltd. retains copyrights and other rights involving these materials. Copyright and otherwise reusing these materials in any way without prior consent is prohibited.

**FURUKAWA ELECTRIC CO., LTD.**

# First half overview and initiatives for second half of FY2017

## ■ First half Overview

- Sales and income increased both Y on Y and against the previous forecast
- In particular, sales and income increased Y on Y in all business segments

## ■ Second half initiatives

- Although the Communications Solutions and Functional Products segments are facing a moderately challenging environment due to increased competition and inventory adjustments by customers, the Automotive Products & Batteries segment is strong
- Steadily advancing the improvements in low-margin businesses and products

(JPY billion)

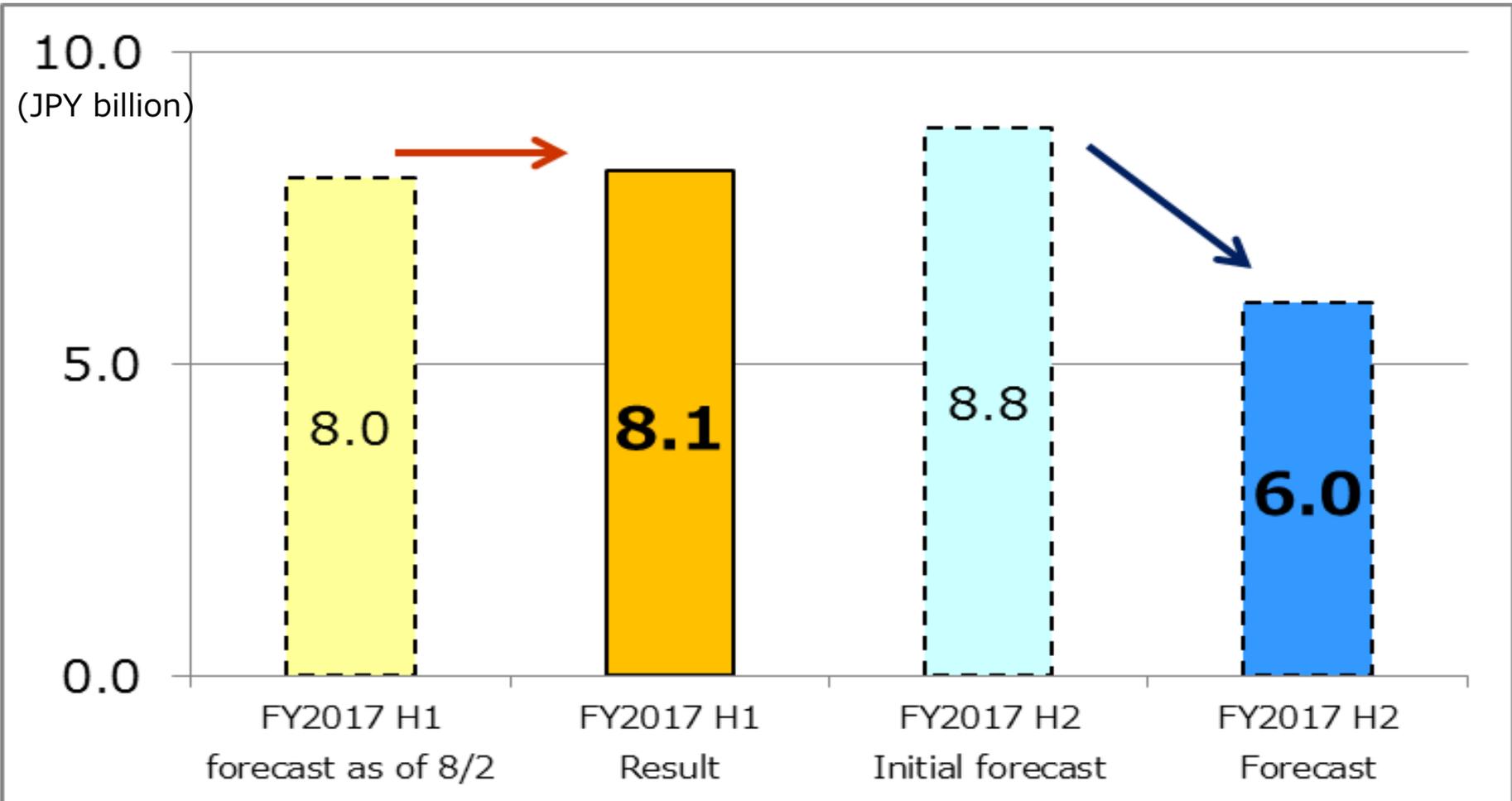
| First half       | FY16 Results | FY17 Previous forecasts* | FY17 Results | YtoY  | Changes from previous forecasts |
|------------------|--------------|--------------------------|--------------|-------|---------------------------------|
| Net Sales        | 397.6        | 450.0                    | 457.5        | +59.9 | +7.5                            |
| Operating income | 13.3         | 20.5                     | 21.8         | +8.5  | +1.3                            |
| Operating margin | 3.3%         | 4.6%                     | 4.8%         | +1.4  | +0.2                            |

| Full year        | FY16 Results | FY17 Previous forecasts* | FY17 Forecasts |              |                     |
|------------------|--------------|--------------------------|----------------|--------------|---------------------|
|                  |              |                          | H1 Results     | H2 Forecasts | Full Year Forecasts |
| Net Sales        | 843.3        | 915.0                    | 457.5          | 467.5        | 925.0               |
| Operating income | 38.6         | 43.0                     | 21.8           | 21.2         | 43.0                |
| Operating margin | 4.6%         | 4.7%                     | 4.8%           | 4.5%         | 4.6%                |

\* Previous forecasts: Only the forecast for the first half was revised on 8/2 (Forecast for the second half was not revised)

# Operating Income in the Communications Solutions Segment

- H1 operating income was roughly in line with the forecast
- On the other hand, optical fiber, cable and digital coherent products are expected to fall below the forecast in H2



## <Optical fiber and cable>

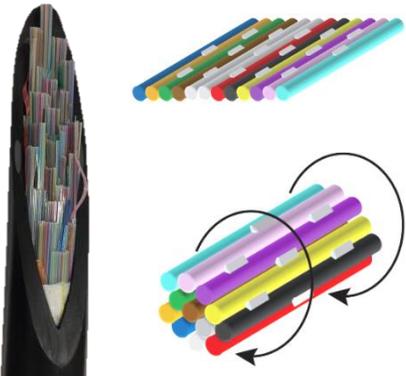
- Due to a reorganization of the North America telecommunications industry, shipments of optical cable to customers in North America are expected to temporarily decline in the second half
- However, as a result of telecommunications infrastructure investments following increased data traffic (including expansions to huge data centers and edge data centers), the solid growth in the Europe and US markets, which are one of the Furukawa Electric Group's strengths, is expected to continue
- Furukawa Electric Group will continue to increase cost competitiveness and expand production from a medium to long-term perspective backed by long-term contracts with customers

## <FITEL>

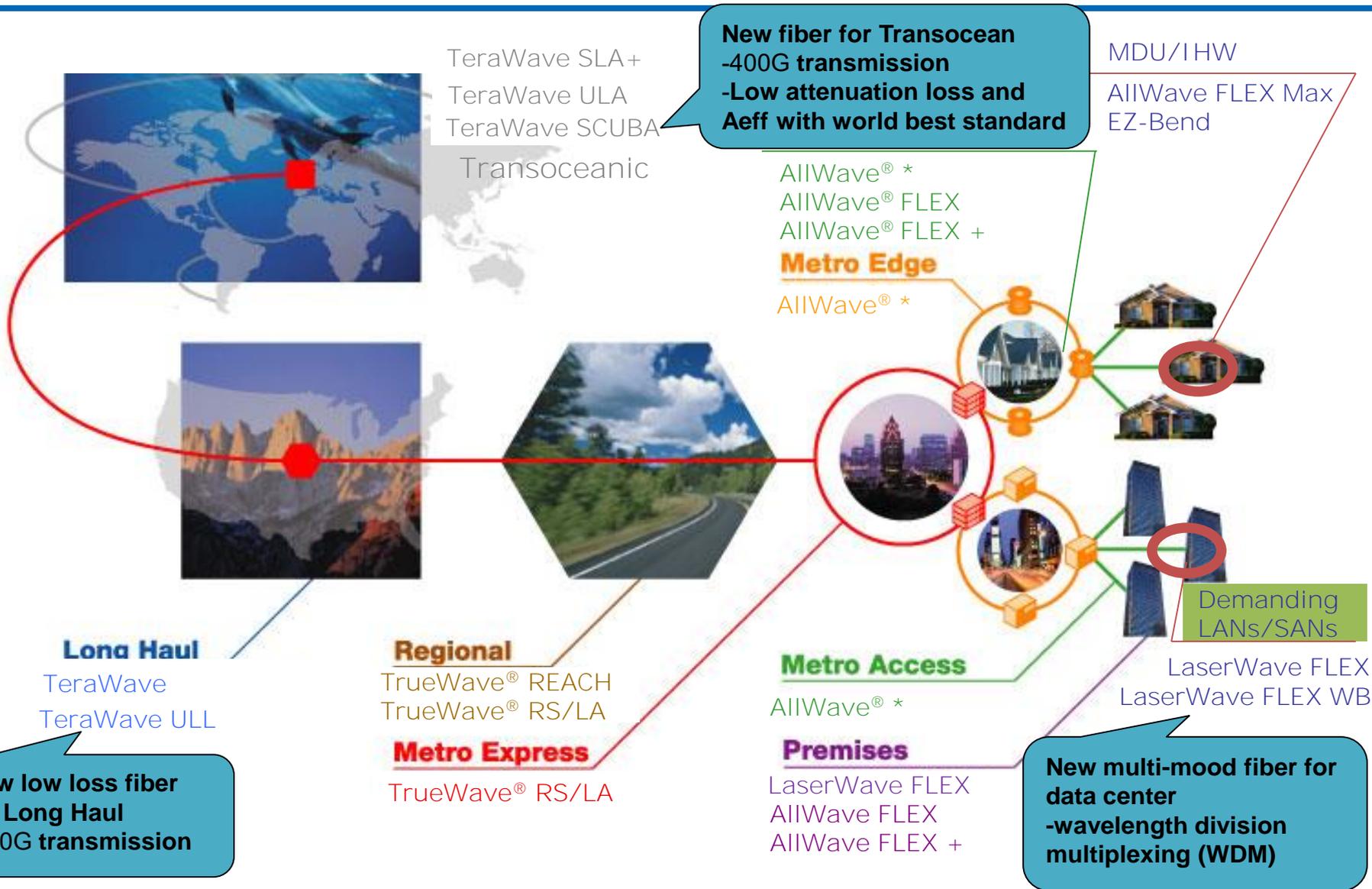
- As a result of the market adjustment in China that has been ongoing since the start of the FY2017, sales of digital coherent products(ITLA) have continued to decline
- A moderate recovery is expected from FY2017 Q4, and Furukawa Electric will work to respond to next generation products and increase the number of customers

\* ITLA (optical device): Key product of Furukawa Electric that is used in active optical components for digital coherent networks

# Key products, Usage and Customer segments

| Business   | Key Products  | Usage (Feature)  | Main customer segment   | Main market   |
|--|---|--|---|---|
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Optical Fiber &amp; Cable Products</b></p> | <ul style="list-style-type: none"> <li>• Submarine cable, low loss fiber for long-Haul</li> <li>• Bend Optimized fiber for FTTx/FTTH.</li> </ul>              | <ul style="list-style-type: none"> <li>• Communication services</li> <li>• Video transmission</li> <li>• Data center</li> </ul>    | <ul style="list-style-type: none"> <li>• Communication Carrier</li> <li>• CATV business companies</li> <li>• OTT</li> </ul> | <ul style="list-style-type: none"> <li>• Europe &amp; U.S</li> <li>• South-America,</li> <li>• South-east Asia</li> </ul> |
|  | <ul style="list-style-type: none"> <li>• Rollable Ribbon Cables</li> </ul>  | <ul style="list-style-type: none"> <li>• Communication services</li> <li>• Video transmission</li> <li>• Data center</li> </ul>  | <ul style="list-style-type: none"> <li>• Communication Carrier</li> <li>• CATV business companies</li> <li>• OTT</li> </ul> | <ul style="list-style-type: none"> <li>• Japan</li> <li>• North-America</li> </ul>  |

# Optical fiber products responded to demands

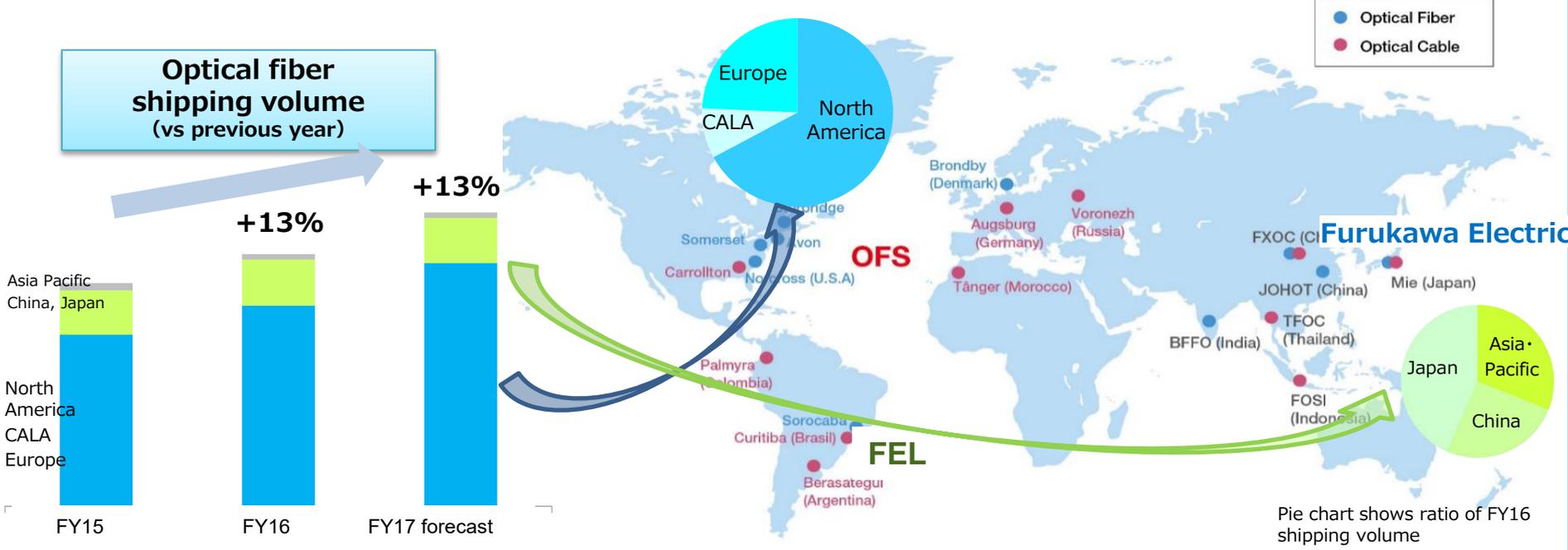
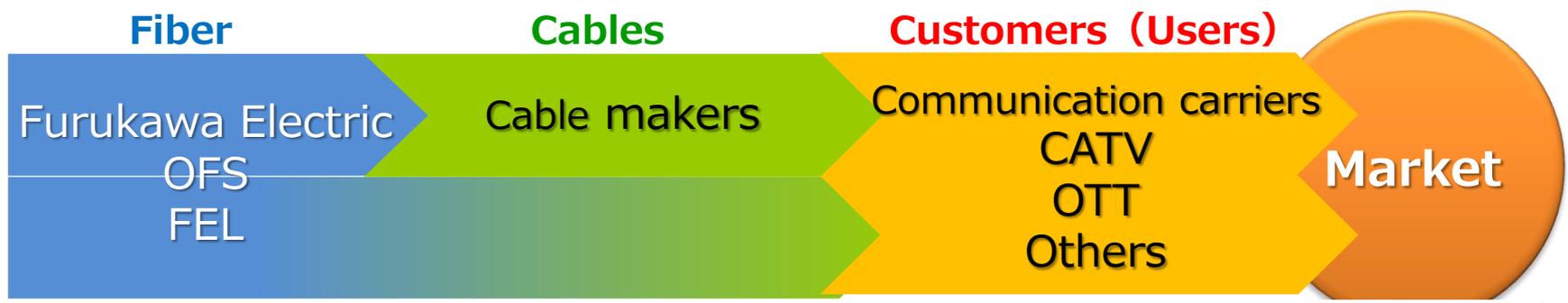


**New low loss fiber for Long Haul -400G transmission**

**New multi-mood fiber for data center -wavelength division multiplexing (WDM)**

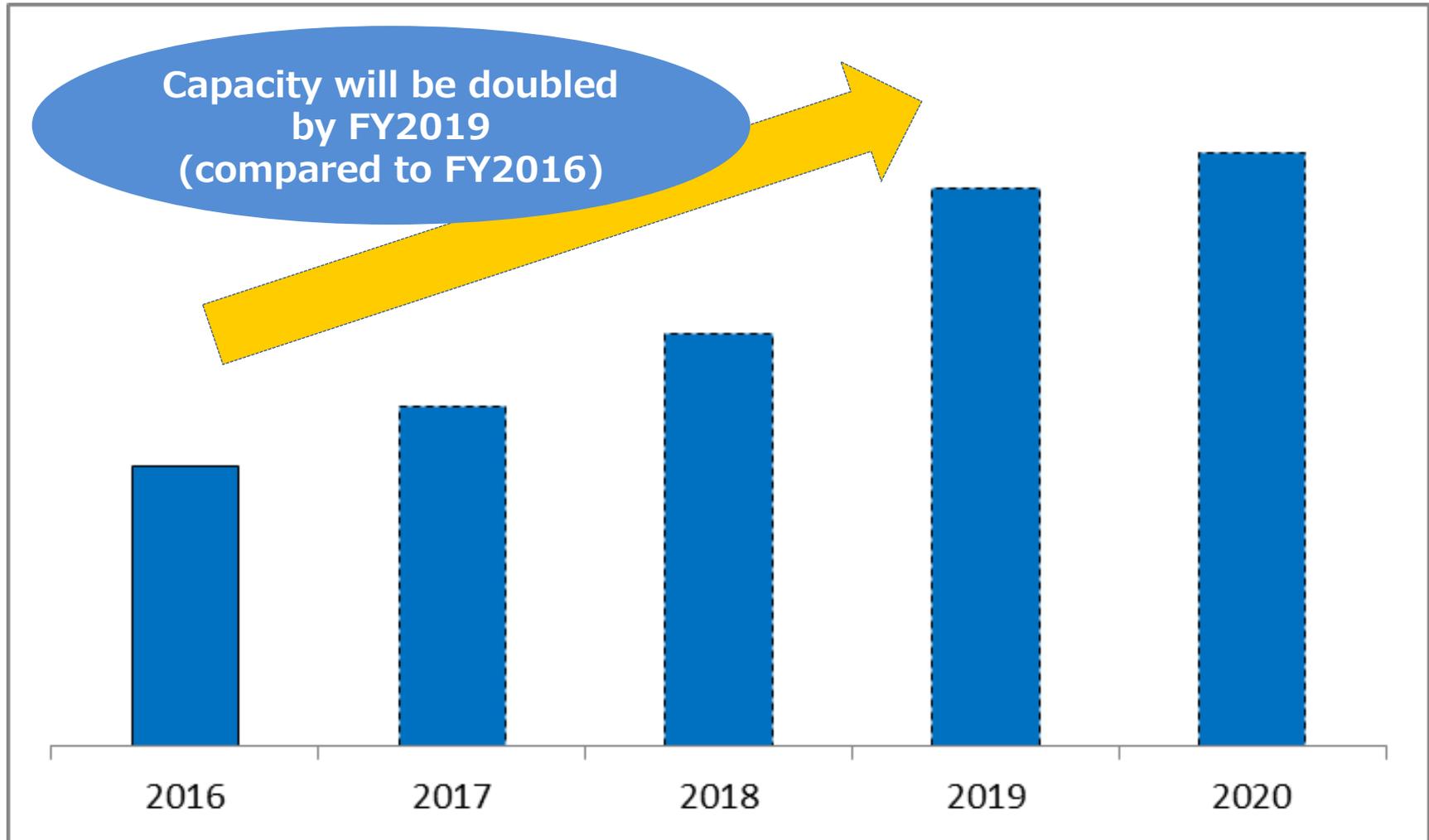
\* AllWave® includes AllWave One, AllWave +, AllWave LL and Standard AllWave

**Strong demand prospects, Development of bases in growth regions**  
**Maintain strong relationship (branding) with good customers**



# Our plan to increase the Production Capacity of Optical Fiber

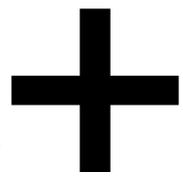
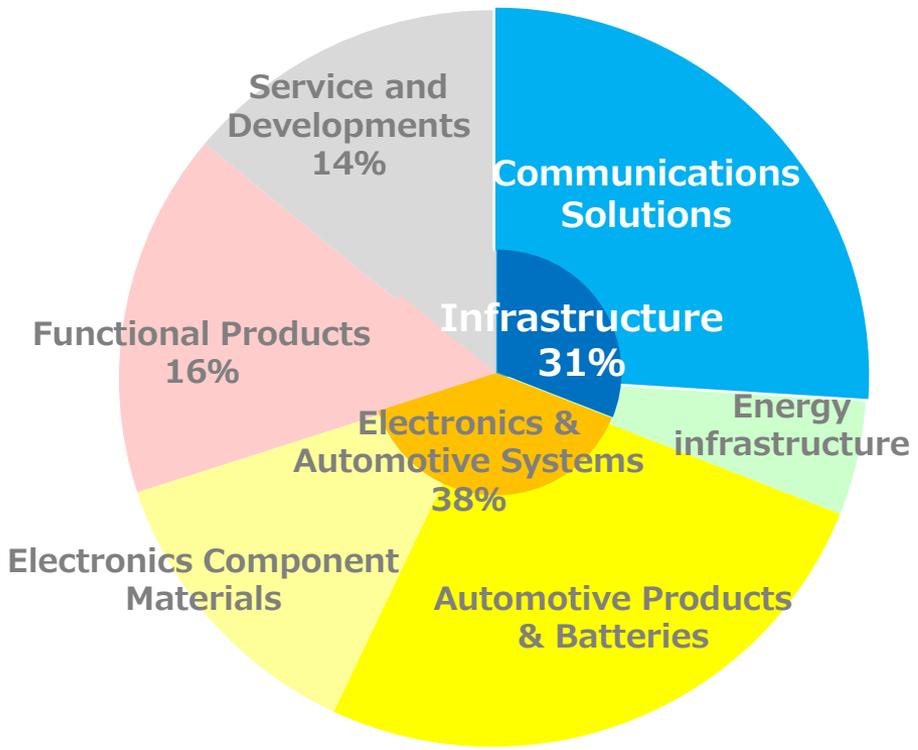
Production capacity will be increased in line with customer requests and market growth



# Additional investments directed toward increasing the production capacity of optical fiber and cable

**In order to expand the production capacity of optical fiber and cable, additional investments will be made**

**Total capital investments (forecast)  
FY2016-FY2018 cumulative total: 110 billion yen**

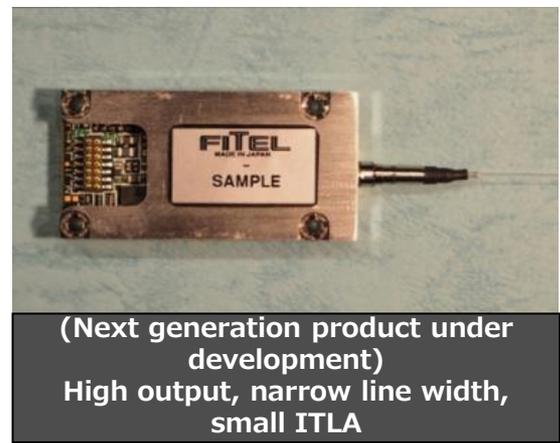
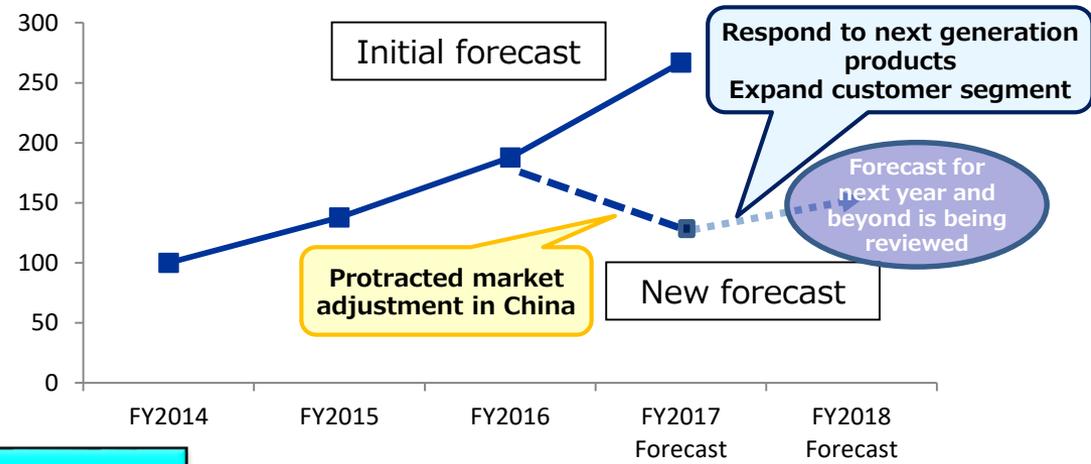


**FY2017-FY2019  
Additional investments  
in optical fiber and  
cable business  
Approx. 150 million USD  
(Approx. 16.5 billion yen)**

※Communications Solutions capital investment includes investments other than the investments in optical fiber and cable

# ITLA Sales Volume Forecast and Development Road Map

**ITLA Sales Volume** ※Based on FY2014 = 100



**Development road map**

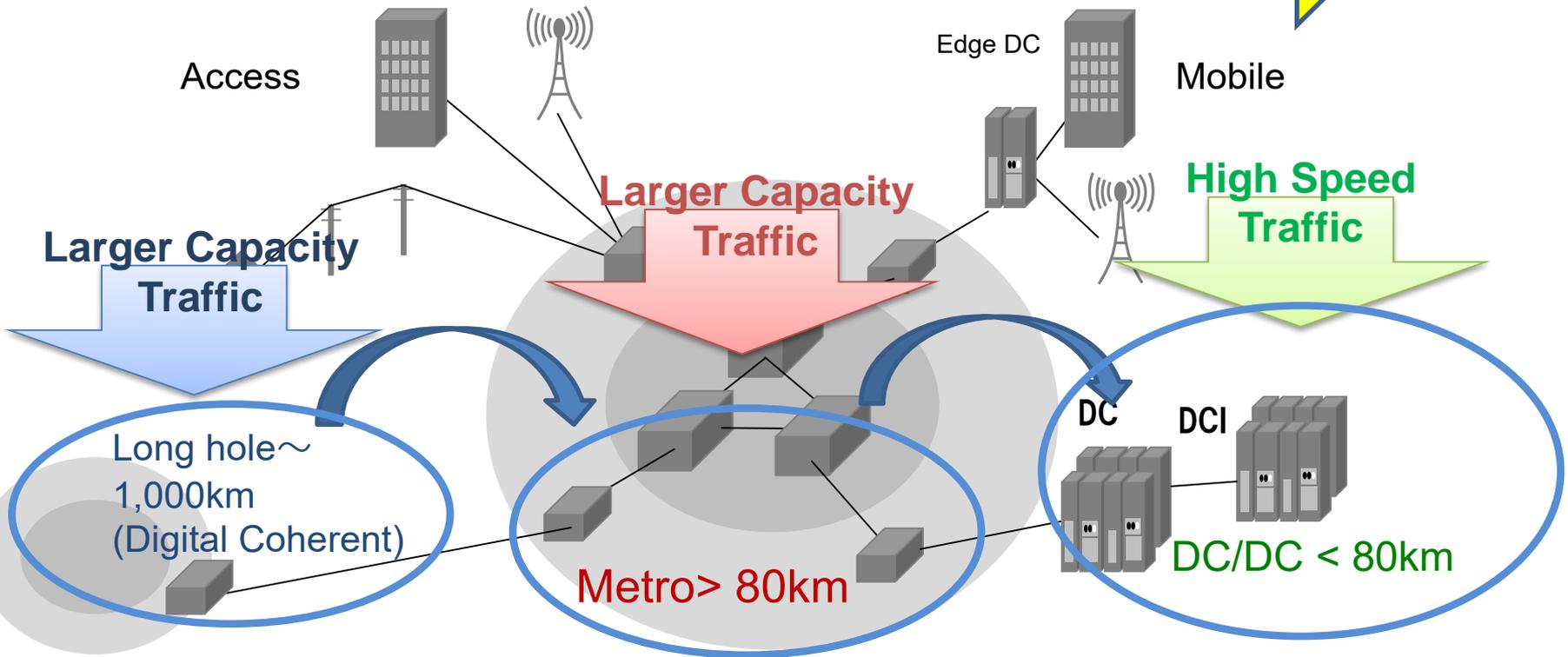
|                         | 2014            | 2015            | 2016 | 2017             | 2018       | 2019   | 2020 | 2021 |
|-------------------------|-----------------|-----------------|------|------------------|------------|--|------|------|
| <b>Digital Coherent</b> |                 | Larger capacity |      |                  | High speed | 600Gbps  |      |      |
| <b>Transceiver</b>      | 100Gbps CFP     |                 |      | CFP2             |            | CFP4/OSFP  |      |      |
| <b>ITLA</b>             | 16dBm<br>300kHz |                 |      | ~19dBm<br>100kHz |            | *Narrow line width<br>*Low power consumption<br>*Optical integration |      |      |

(Trends in the digital coherent market are based on research conducted by Furukawa Electric)

\*High power, Narrow line width and Low power consumption

In addition to expanding to the metro area accompanying the increase in capacity of Traffic, further market growth can be expected by expanding to DC\* area due to high speed

## Extension of Digital Coherent scheme



\* DC : Data Center

(Based on research conducted by Furukawa Electric)

# Reform Low-margin business and products

<Reference; 5/24 Progress of Mid-term Management plan>

—Return on operating assets was introduced to visualize revenue targets in chronological terms by business and product, speeding up the pace of improving low-margin businesses and products.

\*Revised the forecast of operating income from 37.0 billion yen to 43.0 billion yen at Q1 results announcement on 8/2.

|                                   | FY2015 results    | FY2016 results    | FY2017 forecasts  |
|-----------------------------------|-------------------|-------------------|-------------------|
| <b>Return on operating assets</b> | <b>9.1%</b>       | <b>12.1%</b>      | <b>12.9%</b>      |
| Operating income                  | 27.1 billion yen  | 38.6 billion yen  | 43.0 billion yen  |
| Operating assets                  | 298.2 billion yen | 319.6 billion yen | 333.5 billion yen |

<Case examples to reform less profitable business/products >

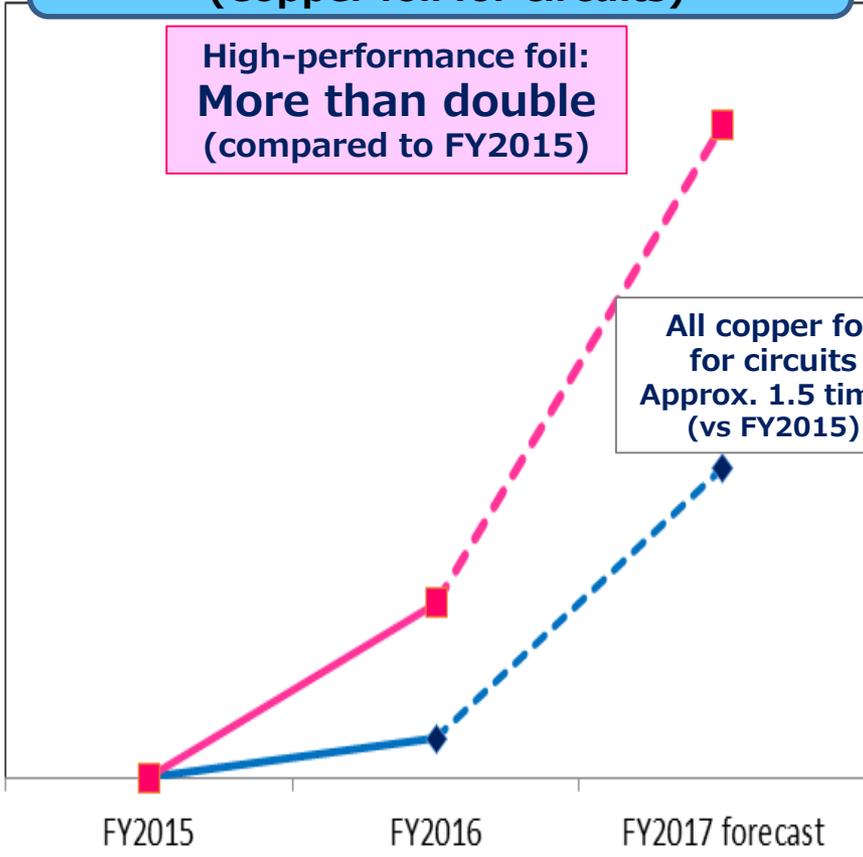
|                     |                                 |                                      |   |
|---------------------|---------------------------------|--------------------------------------|---|
| Completed in FY2016 | Communications Solutions        | (FITEL)                              | <ul style="list-style-type: none"> <li>• Withdraw from optical amplifiers business (Except some products)</li> <li>• Withdraw from optical engine</li> </ul>  |
|                     | Energy infrastructure           | (Industrial cable/Cable accessories) | <ul style="list-style-type: none"> <li>• Integrate domestic parts production sites</li> <li>• Withdraw from bus duct business(China Market)</li> </ul>  |
|                     | Automotive Products             | (W/H)                                | • Integrate North China sites   |
|                     | Electronics Component Materials | (Metal processing)                   | • Close the Nikko sites   |
| In process          | Communications Solutions        | (Fiber •Cable)<br>(FITEL)            | <ul style="list-style-type: none"> <li>• Transfer to the solution business at Southeast Asia</li> <li>• Cooperation for passive optical device (Established Joint venture in April, 2017 )</li> </ul> |
|                     | Automotive Products             | (W/H)                                | • Integrate India sites   |
|                     | Electronics Component Materials | (Cooper tube)                        | • Integrate manufacturing sites for refrigerant pipe  |
|                     | Functional Products             | (Cooper foil)                        | • Shrink generic foil manufacturing   |

## Improve profitability by improving the product mix through a shift from commodity foil to high-performance foil

**Profit growth  
(Copper foil for circuits)**

High-performance foil:  
**More than double**  
(compared to FY2015)

All copper foil  
for circuits  
Approx. 1.5 times  
(vs FY2015)



**Main target: Server, router, mobile device markets**

• Contribute to the **increased speed and volume** of communications data

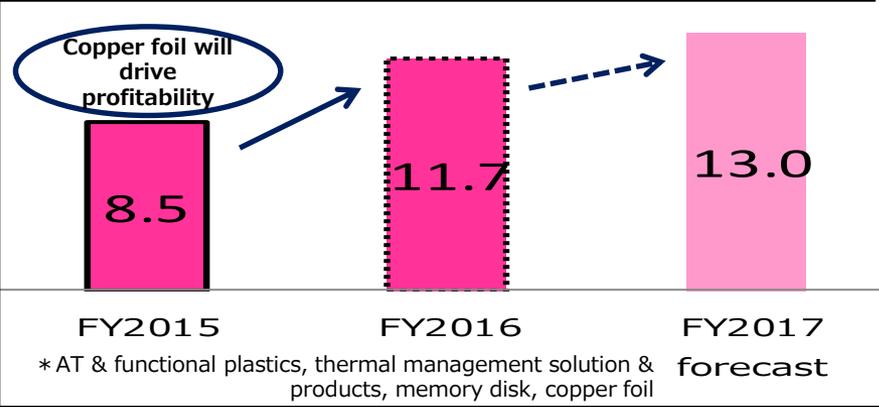


Appearance of copper foil



Example of a product application (used in the inner layers of the main circuit board)

**Functional products segment\*  
Operating income (JPY billion)**



## Improve the product mix and increase sales with a focus on the automotive and infrastructure markets

### Shift of Shipping volume and product mix improvement

### Main target markets

#### Connector market

- High strength and high conductivity material
- Ability to provide thin strips (t=0.06, 0.08mm)

USB connector

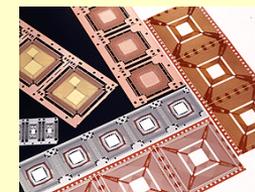


#### Lead frame market

- Low residual stress material (Low twisting, bending or shifting of the lead)
- Non-magnetic material (Reduce noise)

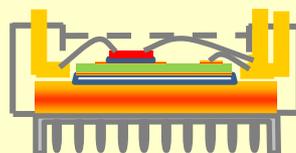


Logic semiconductor



#### Power module market

- Heat resistance performance (DCB circuit board, heat spreader)

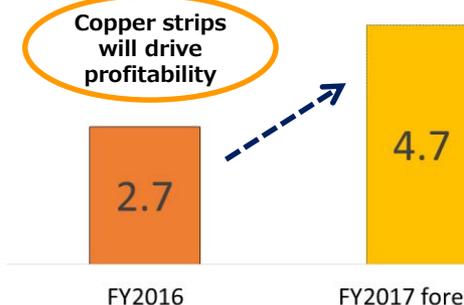


Power semiconductor



DCB circuit board

### Electronics & Automotive Systems materials segment\* Operating income (JPY billion)



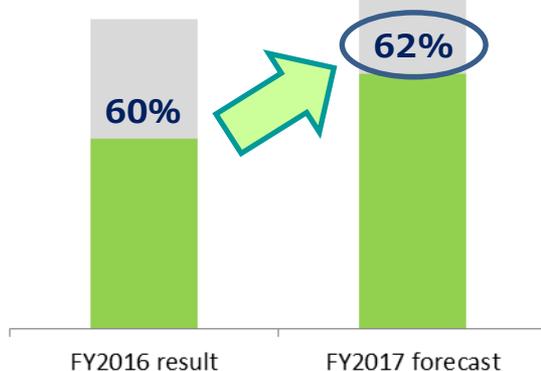
\* Copper & High Performance Material Products, Electric Conductor, Magnet Wire, Copper Tube

t/Month



### Change in the profit composition ratio of value-added products

Definite improvement toward 70% in 2020

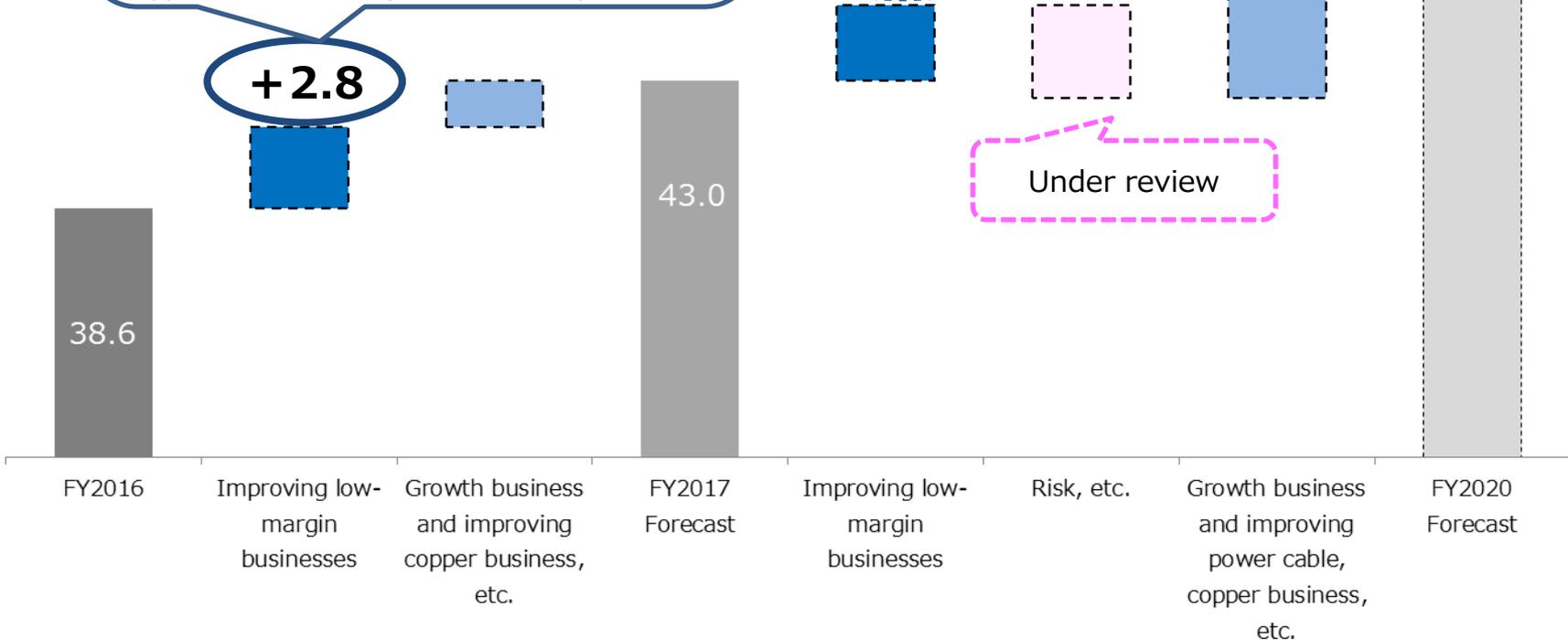


## Review the profit targets for each business and product, and steadily achieve results

(JPY billion)

- (Main improvements)
- Optical fiber and cable: Increased flexibility in line with the improvement in the optical cable market in Japan
  - FITEL: Improvement by Business cooperation in passive components
  - Copper strips & high performance materials: Reduced cost of sales and increased sales through new orders
  - Copper foil: Shift to high value-added products

**Further accelerate the improvement initiatives**



Thank you very much  
for your attention.

***Bound to***  ***Innovate***