

Business Briefing

Automotive Products business

Shigenobu Abe
General Manager,
Automotive Products business division

June 11/12, 2019
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.

I . Market trends

- (1) Global automobile production volumes
(by manufacturer)**
- (2) Electrification market (EV, HEV, PHEV)**
- (3) Furukawa Electric's strategy**
- (4) Business plan and targets**
- (5) Sales, profit and investment forecasts**

II . Main products and applications

III . Key products

I . Market trends

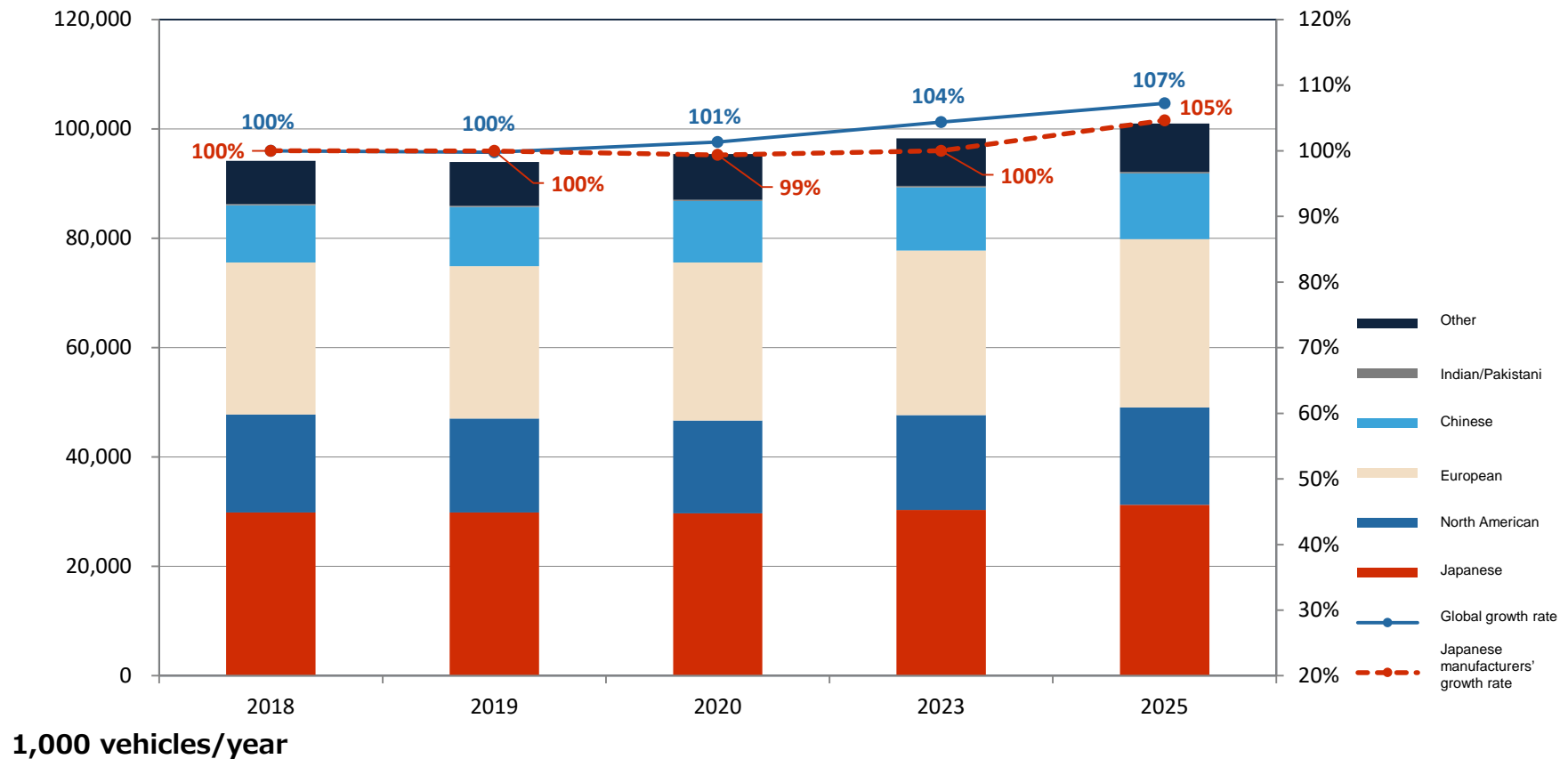
- (1) Global automobile production volumes
(by manufacturer)**
- (2) Electrification market (EV, HEV, PHEV)**
- (3) Furukawa Electric's strategy**
- (4) Business plan and targets**
- (5) Sales, profit and investment forecasts**

II . Main products and applications

III . Key products

(1) Global automobile production volumes (by manufacturer)

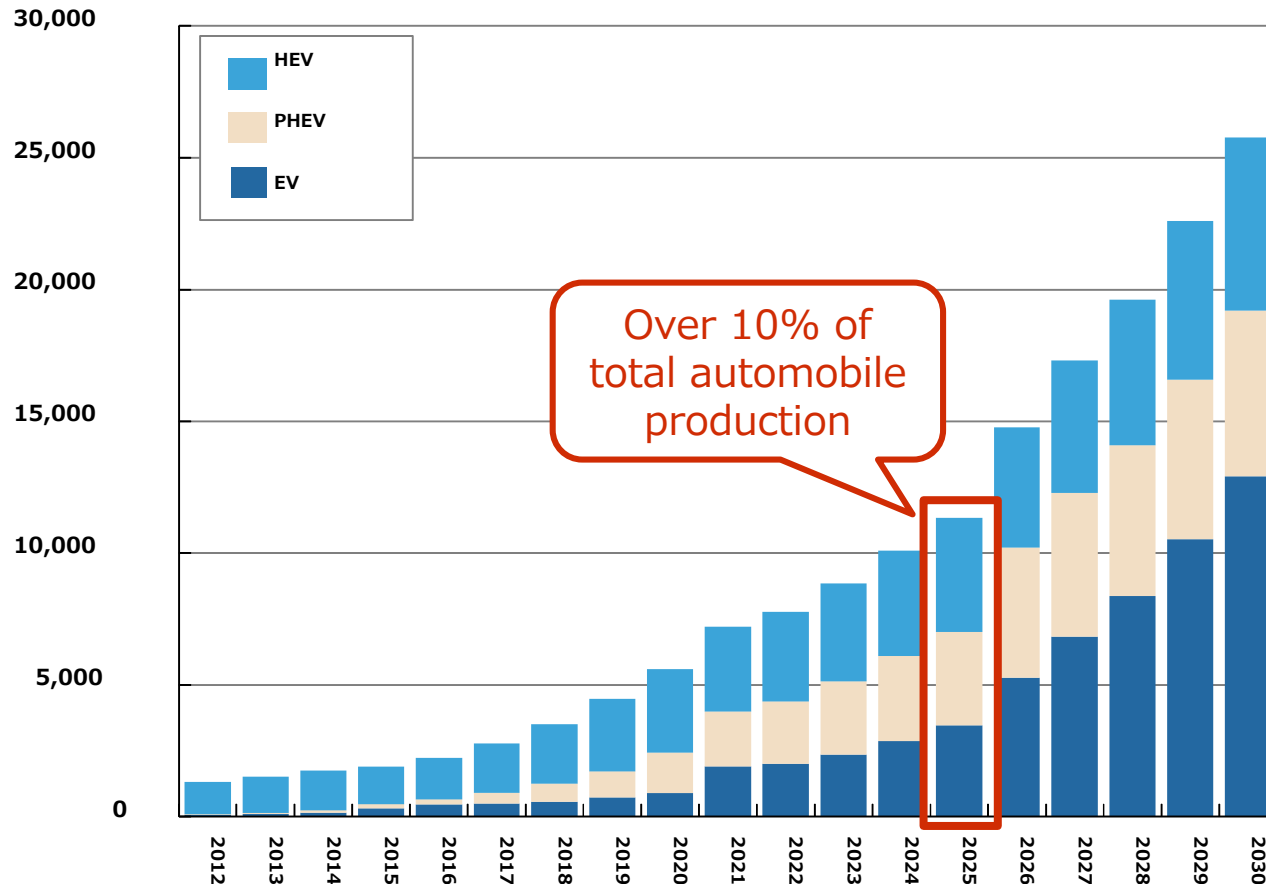
- Global production is expected to gradually expand (about 7% higher compared to FY2018)
- Japanese manufacturers' production is expected to increase about 5%



Source: Compiled by Furukawa Electric based on IHS market data

(2) Vehicle electrification market (EV, HEV, PHEV)

- Going forward, the vehicle electrification market will rapidly expand and is expected to account for about 10% of total production in 2025



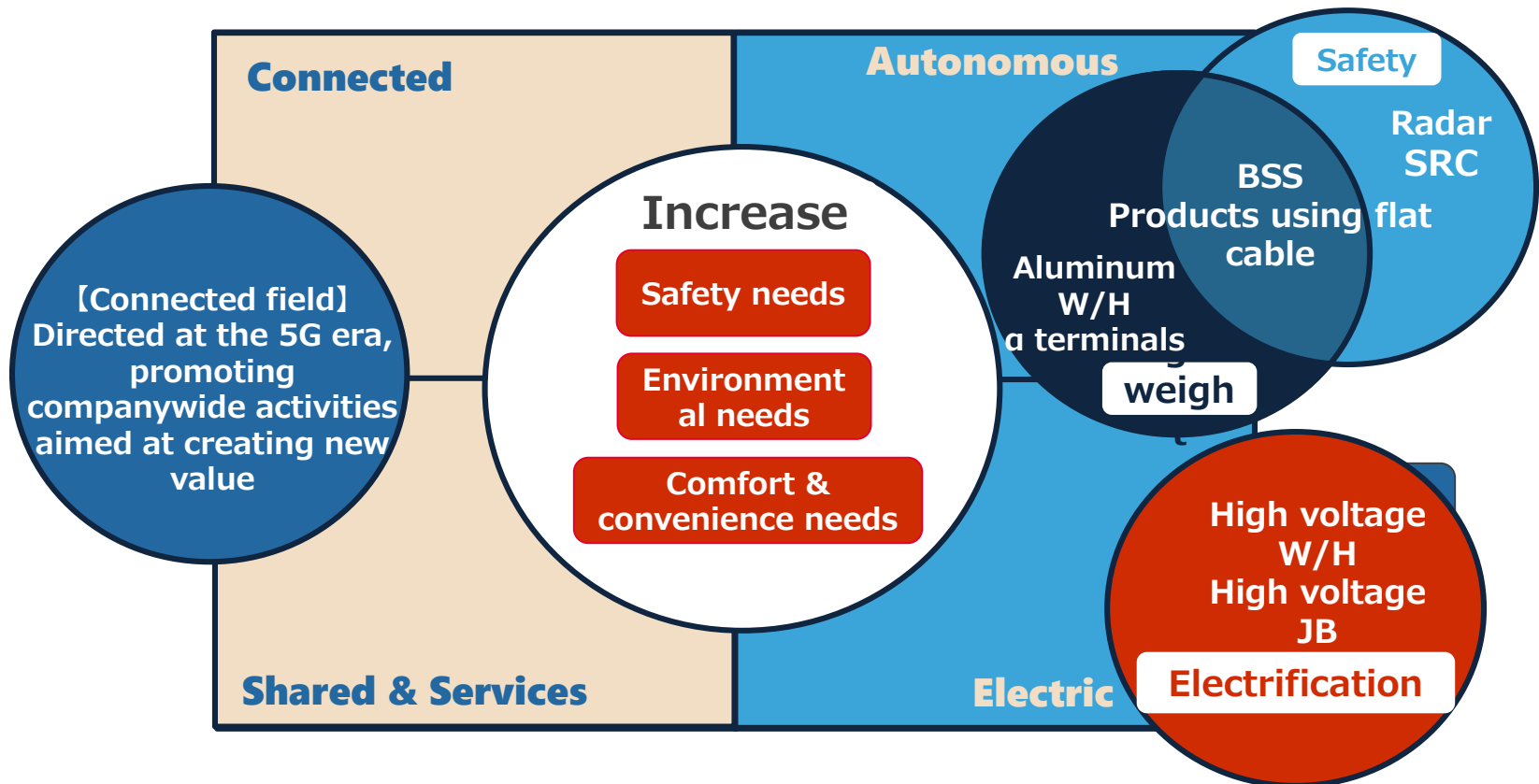
Source: Mizuho Bank (Created by the Mizuho Bank Industry Research Division based on documents from JATO JAPAN and the automotive industry associations in each country)

*Forecasts from 2017 are forecasts of the Mizuho Bank Industry Research Division

(3) Furukawa Electric's strategy

The automotive industry is approaching a major turning point on the scale that occurs only once every 100 years, including connected, autonomous driving, car sharing and electrification.

Furukawa Electric has formulated a strategy for securing a solid business foundation in the coming mobility society and will accurately respond to market needs by combining the company's unique core technologies and in-vehicle technology.



(4) Business plan and targets

10-year Automotive Products plan (2019~2028)

① Profit targets

Wire harnesses (W/H): Reap the benefits of the recent investments, and grow the volume of new orders that will provide solid profits

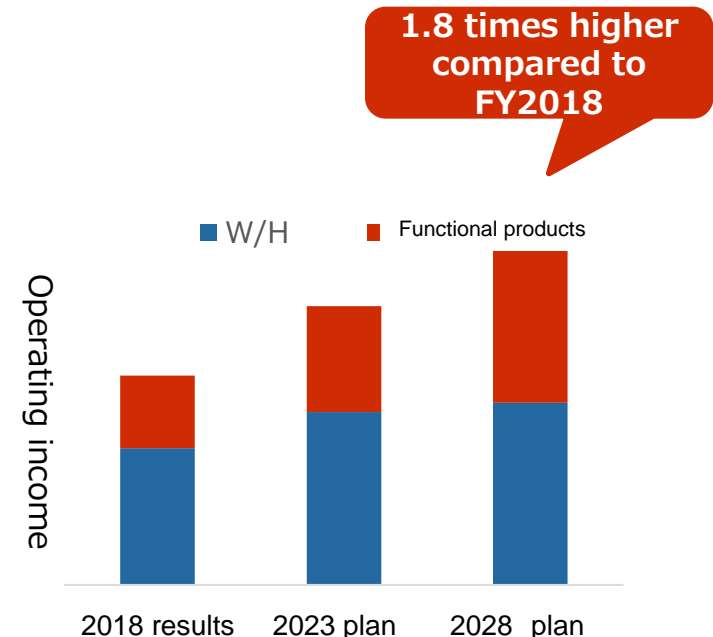
Functional products: From 2023, expand to the next level through sales promotions and the launch of new products onto the market

② Main recent initiatives

Strengthen the global management organization

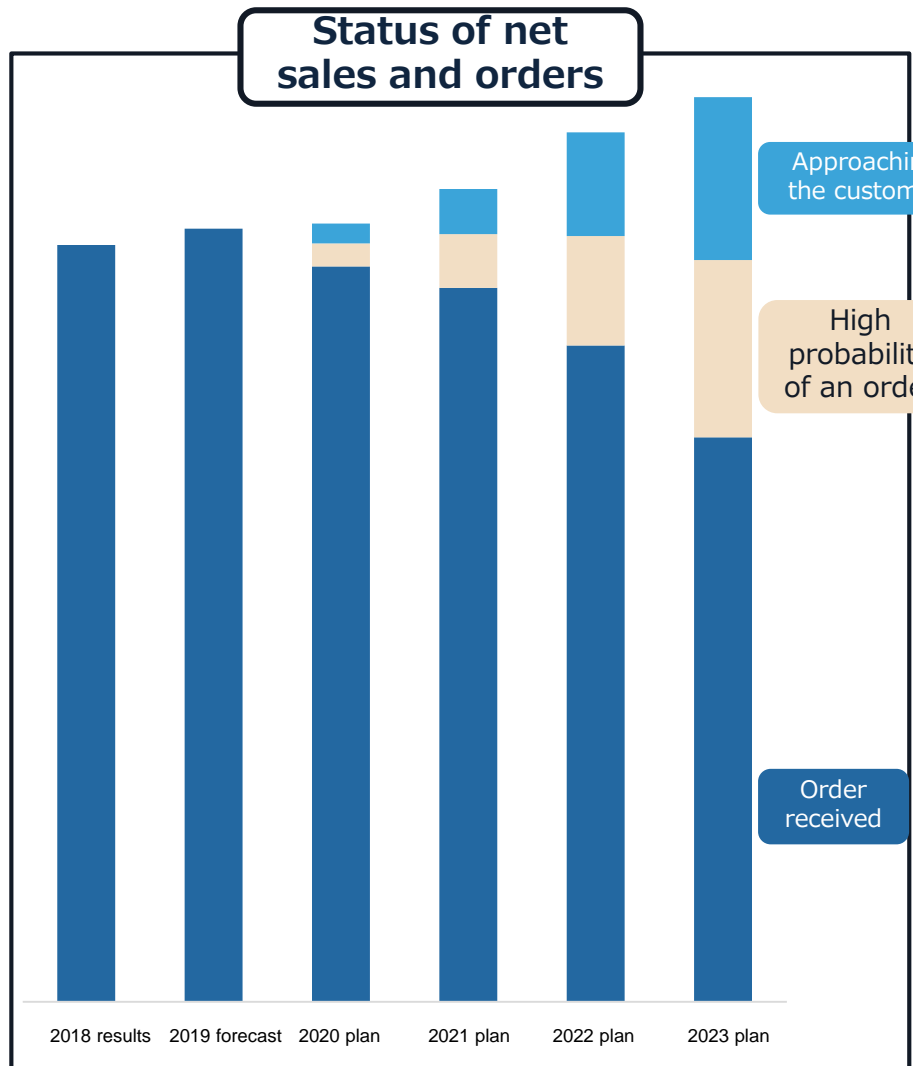
Expand the factory in the Philippines, and increase the production of aluminum wires in Vietnam

Increase productivity, including automation

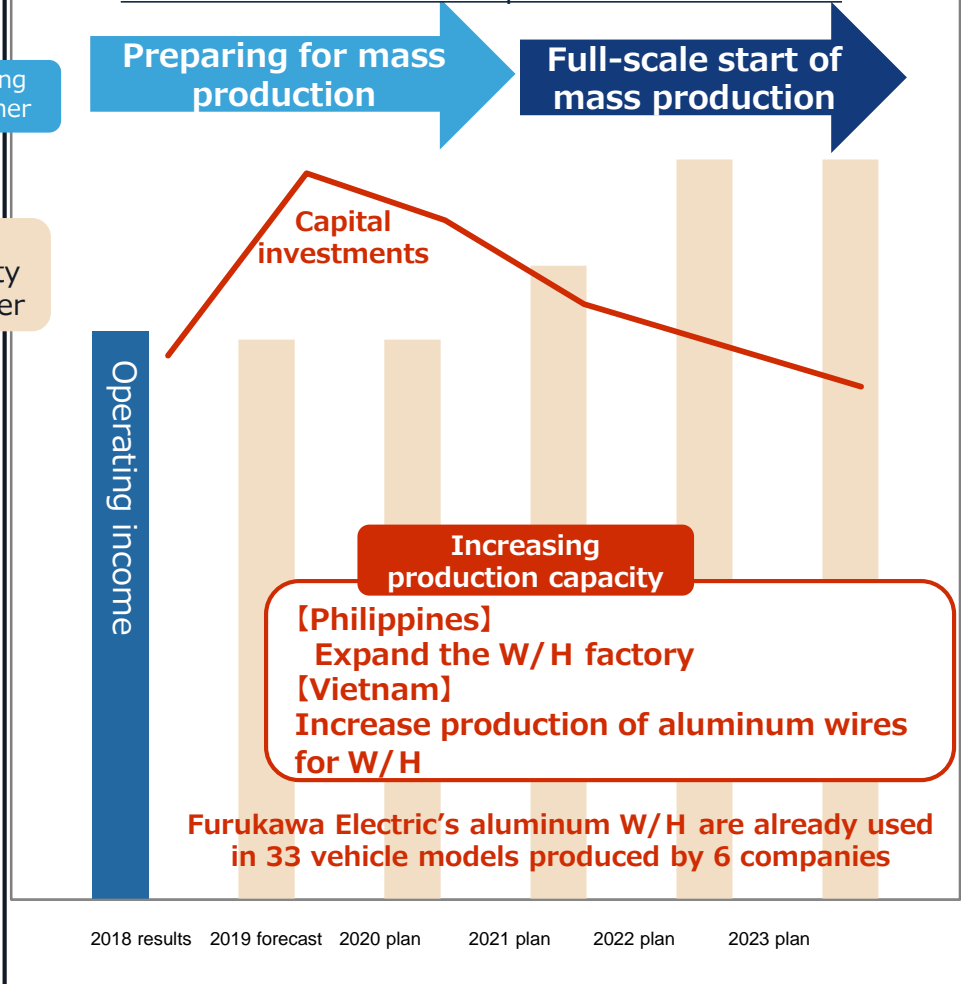


(5) Sales, profit and investment forecasts

Through the strength in aluminum harnesses and characteristic functional products, steadily accumulate orders



Recently, depreciation costs and production preparation costs have increased as a result of advanced investments, but the benefits will start to be reaped in full from FY2022



I . Market trends

- (1) Global automobile production volumes
(by manufacturer)
- (2) Electrification market (EV, HEV, PHEV)
- (3) Furukawa Electric's strategy
- (4) Business plan and targets
- (5) Sales, profit and investment forecasts

II . Main products and applications

III . Key products

Main products

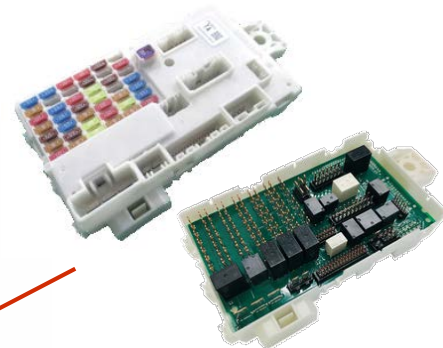


Wire harnesses

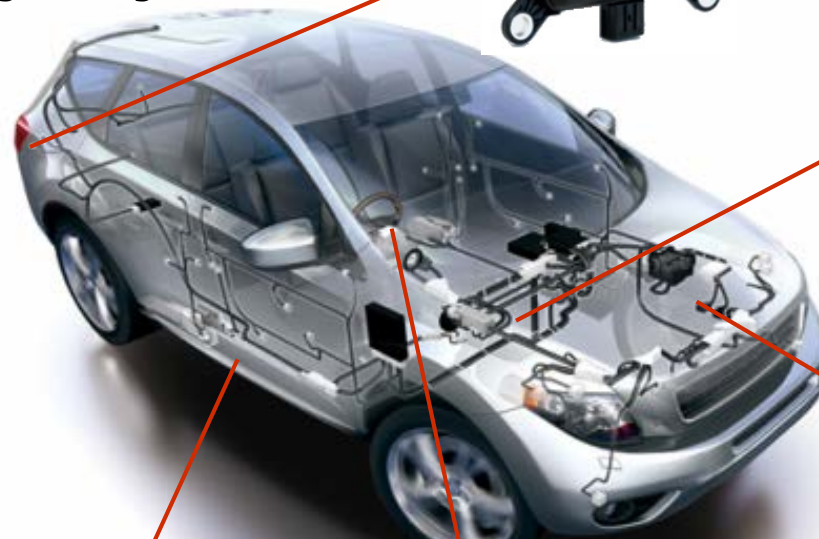


high voltage harnesses

Quasi-millimeter wave radar



Junction boxes



Aluminum W/H: 6 companies (33 vehicle models)
*As of May 2019

No. 1 in the world with 40% share of the market
Ship about 30 million units per year



Aluminum wire / Corrosion-proof terminal (α terminal)



Lead battery state detection sensor (BSS)



Onboard connectors









Sliding door harness

Steering roll connector (SRC)



Applications and customer segments of each product

Safety	Lightweight	Electrification	Key products	Applications	Main customers	Ratio of overseas sales Main areas
✓			Quasi-millimeter wave radar 	Advanced driver-assistance systems (ADAS)	Japanese automobile manufacturers	Japan
✓			Steering roll connector (SRC) 	Connector for airbags	All automobile manufacturers worldwide, including Tier 1	75% Worldwide
✓	✓		Lead battery state detection sensor (BSS) 	Vehicle power source management	Japanese automobile manufacturers	75% Japan, China, North America
✓	✓		Products using flat cable 	Electricity supply and signal transmission for sliding doors and long slide seats	Automobile manufacturers	Worldwide
	✓		Aluminum harnesses Corrosion-proof terminal (α terminal) 	Reduce the weight of vehicle wiring (W/H)	Japanese automobile manufacturers	30% Japan
		✓	High voltage products 	Wiring for electric vehicles	Japanese automobile manufacturers	Worldwide

I . Market trends

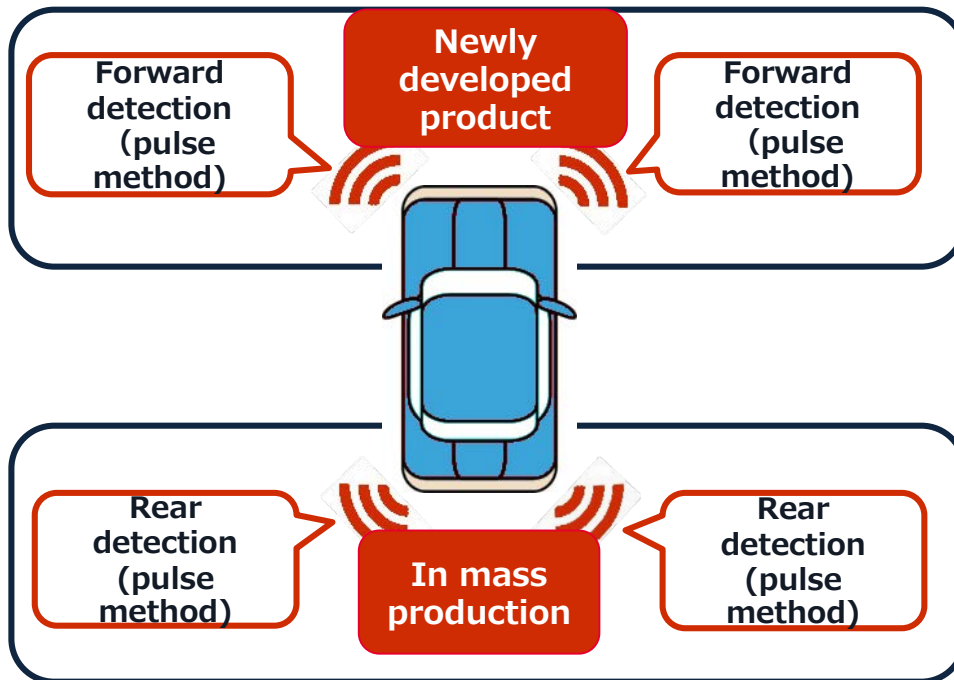
- (1) Global automobile production volumes
(by manufacturer)
- (2) Electrification market (EV, HEV, PHEV)
- (3) Furukawa Electric's strategy
- (4) Business plan and targets
- (5) Sales, profit and investment forecasts

II . Main products and applications

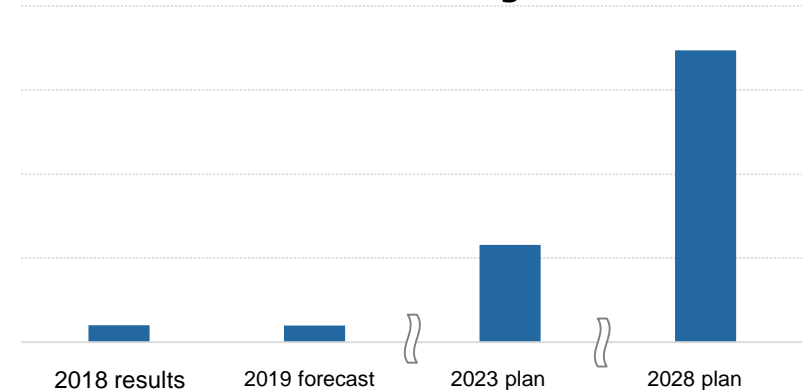
III . Key products

[Safety] Quasi-millimeter wave radar

- Through commercialization of the quasi-millimeter wave pulse method (first in the world), in the short to medium-range:
 - Realize high resolution and high separation capability in a wide-angle field of view
 - Detect people, which is difficult to achieve with the other company's (FCM) method
- Easy to equip in the bumper, which is difficult to do with millimeter wave

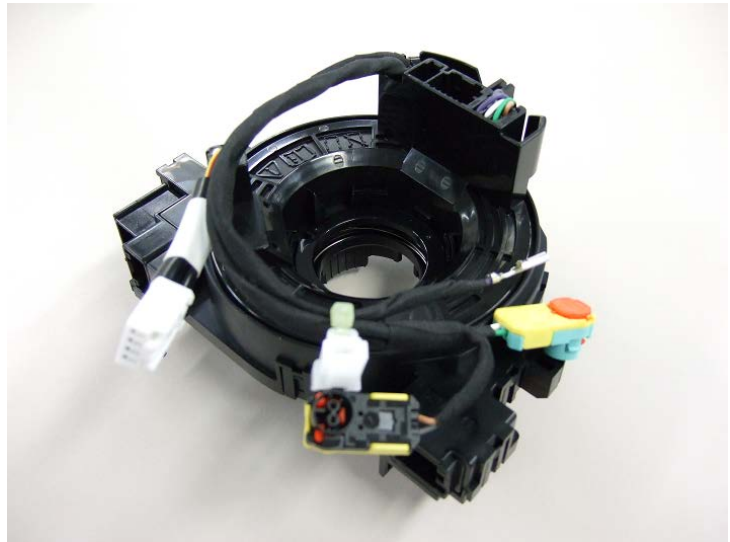


Sales volume target

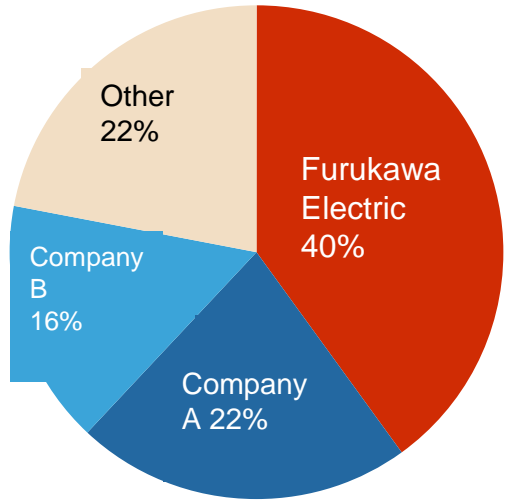


【Safety】 SRC (Steering Roll Connector) **FURUKAWA ELECTRIC**

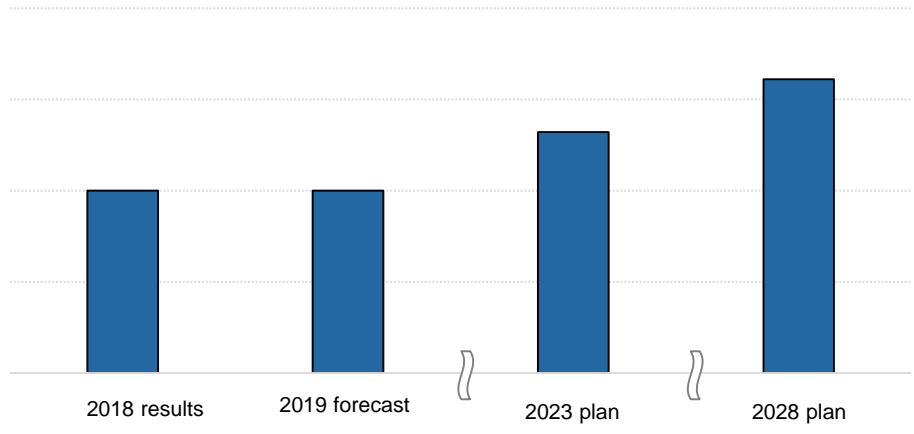
- Performance differentiation through the multi-tape U-turn method
- Production system for local consumption of local production in 5 regions around the world
- Aim to be the global leader with a market share of 50%



Furukawa Electric's share of the global market (2018)



Sales volume target



Products using flat cable

- Satisfy the needs of automobile manufacturers through the development of products that utilize the strengths of flat cable (high bendability, lightweight, thin).
- Expand sales of lightweight, space-saving sliding door harnesses (SDH)
- Launch onto the market (targeting 2022) a small, lightweight long slide seat harness (LSH) that accommodates seats with a long slide
 - ➔ From 2020, the market will expand following the revision to the regulation for seat belt reminders

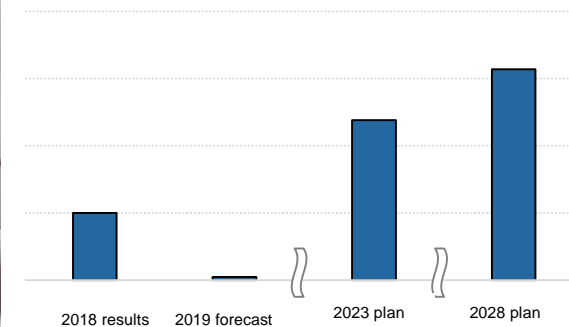
SDH



LSH



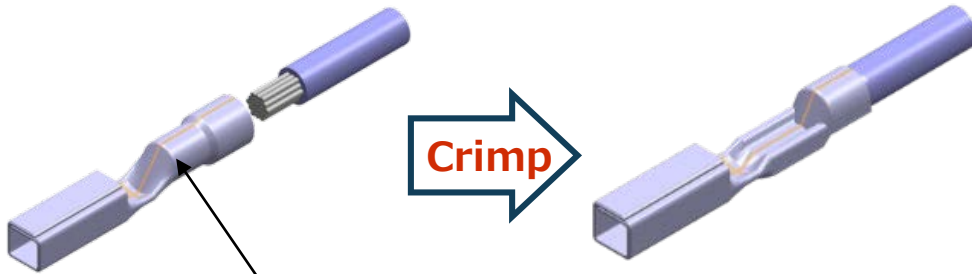
Sales volume target



[Lightweight] Aluminum W/H

- Contribute to reducing vehicle weight and improving fuel efficiency with aluminum wire harnesses
- Establish a framework for increasing the production of aluminum wires
- Realize corrosion-proof technology, which is essential for the increased use of aluminum W/H
- Expand the lineup of aluminum W/H and the new corrosion-proof α terminal
- Going forward, track the continued growth of Japanese automobile manufacturers globally

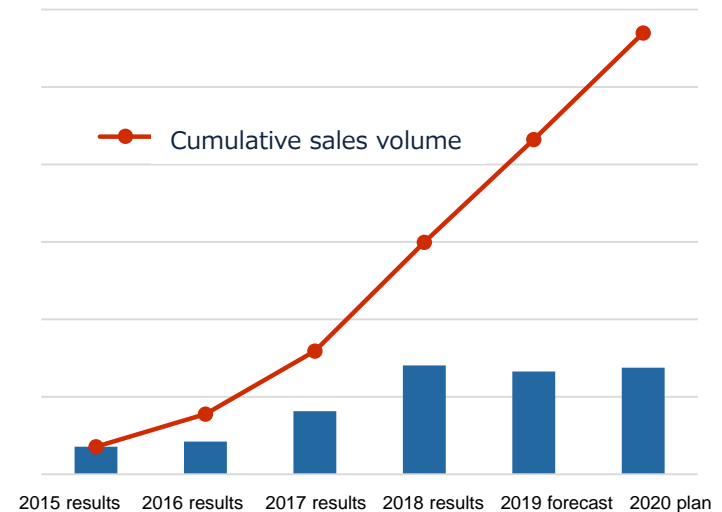
Core technology for expanding the use of aluminum W/H: α terminal



The terminal is manufactured using high speed press production and the company's fiber laser and welding technology

Can prevent corrosion of the aluminum W/H just through the normal crimping process

Sales volume target for the α terminal

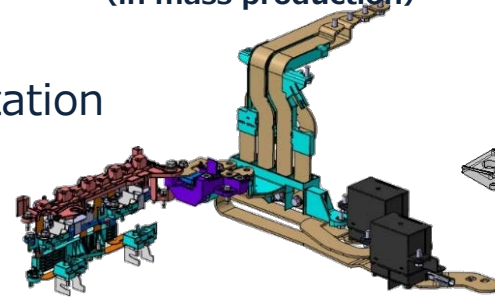


【Electrification】 High voltage W/H and high voltage components

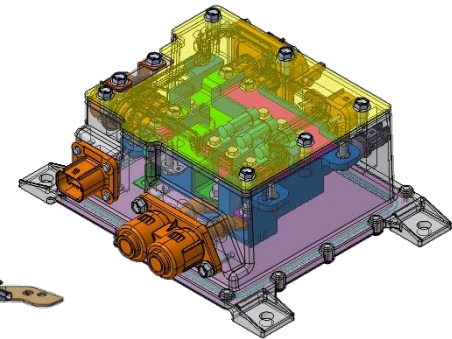
【High voltage W/H】

- Expand the lineup
- Expand the wires and components that realize lighter weight, increased flexibility and reduced space through the use of new materials including aluminum
- Develop new products based on the expectation of an increased ratio of PHEV & EV in the India and China markets

High voltage terminal block for fuel cell vehicles (in mass production)



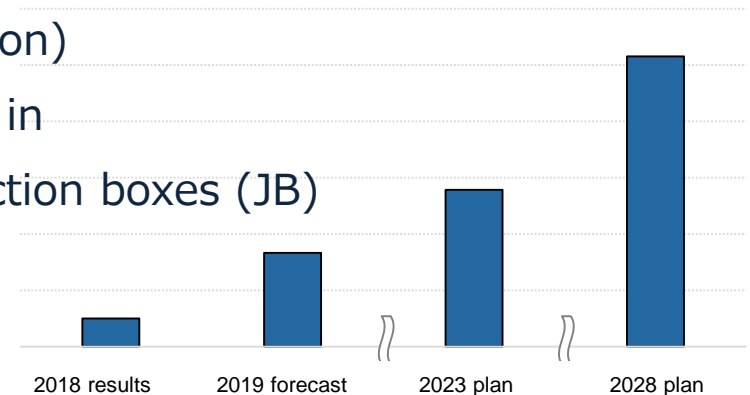
High voltage JB for EV (In development)



【High voltage components】

- For fuel cell and HEV vehicles
→ High voltage terminal blocks (in mass production)
- Products that apply the technology accumulated in high voltage terminal blocks and low voltage junction boxes (JB)
→ High voltage JB (being designed)
※ Aiming for differentiation by making them lighter and higher performance

Sales volume target



Thank you very much
for your attention.

Bound to  ***Innovate***