

Separator Business Briefing

Asahi Kasei Corp.

March 8, 2023

- 01** Main points (summary)
- 02** Investments thus far
- 03** Operating environment
- 04** Separator business policy and strategy

01 Main points (summary)

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Main points (summary)

1 Unified management of Hipore and Polypore since acquisition in 2015; Polypore business significantly underperforming due to operating environment change

2 Hipore demand expanding in automotive applications; focusing resources on Hipore to gain further growth in automotive applications centered in North America and Japan

3 As the business positions have become clear, changing from unified management to separate management of Hipore and Polypore

4 Regrouping of assets into two units; recognizing impairment related to Polypore business

- FY2022 extraordinary loss of approximately ¥185 billion
- Equivalent to residual book value of goodwill and other intangible assets recognized at acquisition in FY2015

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Aims at time of Polypore acquisition

Addressing automotive markets with unified management through Polypore acquisition in 2015

Market trends and technology issues for environmentally friendly vehicles at time of acquisition

Main types of environmentally friendly vehicles:
HEV, PHEV, EV, ISS¹

Automotive LIB **chemistry**:
ternary cathode

Environmentally friendly vehicle **drive/power system**:
idle start-stop/48-volt system

Government policy support:
subsidies, tax breaks, etc.

Unified management (asset grouping) as separator business

Hipore wet-process LIB separator

Leading track record in consumer electronics applications

Celgard dry-process LIB separator

Pioneer in automotive applications

Daramic lead-acid battery separator

Market leader

Obtained through 2015 Polypore acquisition

Market trends unclear, many technical challenges

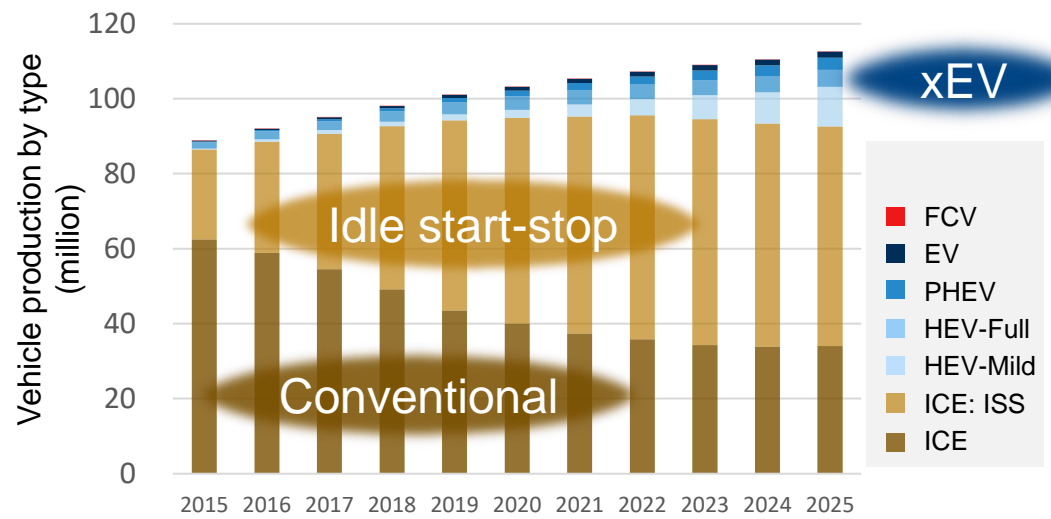
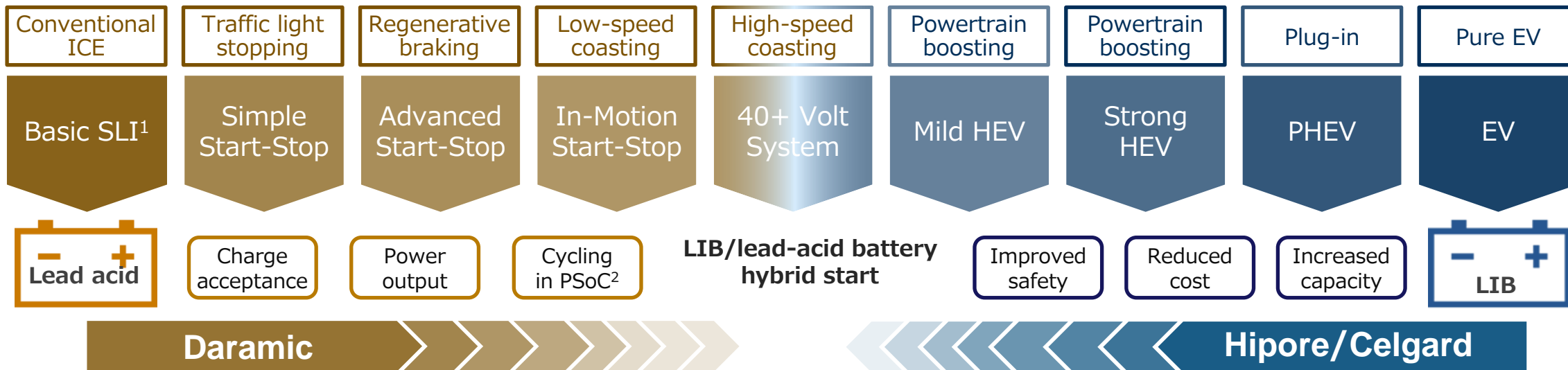
Aims of Polypore acquisition

- Growth in automotive markets by obtaining dry-process LIB separator business with track record in automotive applications
- Addressing market trends and technical challenges in environmentally friendly vehicle markets through unified management of wet-process LIB, dry-process LIB, and lead-acid separator

¹ Idle start-stop

Reference: Aims at time of Polypore acquisition

Automobile market changes and opportunities (material from 2015)



Market change

- New needs and technological innovation with spread of environmentally friendly vehicles (xEV, ISS): fast recharge for regenerative braking, durability under PSoC usage
- While previously unconnected, vehicles with both lead-acid battery and LIB are emerging: need for electric power management technology

Basic policy

- After finding market opportunities for lead-acid battery and LIB individually, aim for separator market opportunities from electrification
- Moving forward, become able to make optimum proposals as the only manufacturer of both lead-acid battery separator and LIB separator

¹ Starting, lighting, and ignition ² Partial state of charge

Automotive market situation after Polypore acquisition

Coated wet-process membrane becoming mainstream in automotive LIB markets; growing demand for Hipore, sluggish demand for Celgard; North American automotive LIB market expansion clear due to Inflation Reduction Act (IRA)

Position in automotive markets

Hipore wet-process LIB separator

- Adopted in batteries with NMC¹ and NCA² cathodes
- Main targets are EV and PHEV

Celgard dry-process LIB separator

- Adopted in batteries with LFP³ cathodes
- Main target is HEV

Daramic lead-acid battery separator

- Used for starting xEV engines, powering EV accessories

Situation after Polypore acquisition

Growing demand in automotive applications

Sluggish demand in automotive applications

Earnings impacted by high feedstock costs

¹ Nickel-manganese-cobalt ² Nickel-cobalt-aluminum ³ Lithium iron phosphate

Policy for each business moving forward

Policy for each business clarified; change to separate management of Hipore and Polypore businesses

Product

Position

Basic policy

**Hipore
business**

**Hipore wet-process
LIB separator**

**Committing
resources,
growing earnings**

- Growth in automotive markets in NA and Japan
- Enhancing competitiveness in NA automotive market through alliances, etc.
- Differentiation and higher value-added in consumer electronics

**Polypore
business**

**Celgard dry-process
LIB separator**

**Earnings
improvement**

- Dramatic improvement in productivity
- Capturing demand in LIB for ESS¹ and HEV
- Joining supply chain of emerging LFP battery makers in NA

**Daramic lead-acid
battery separator**

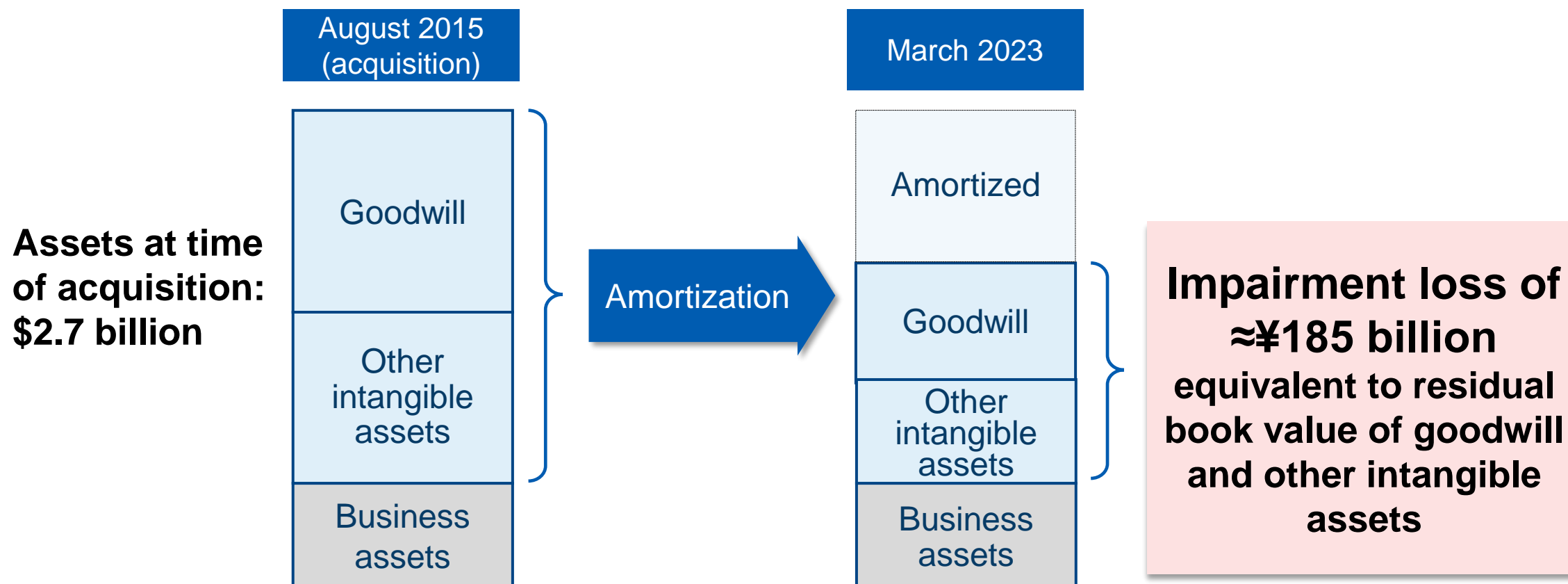
**Steady cash
generation**

- Further strengthening global manufacturing sites (cost reduction, etc.)
- Penetration of emerging markets
- Leadership in environmentally friendly vehicle lead-acid battery market

Assets regrouped; impairment testing performed

Impairment loss on Polypore

Performed impairment testing based on expected future cash flows of Polypore independently; forecasting an impairment loss of approximately ¥185 billion

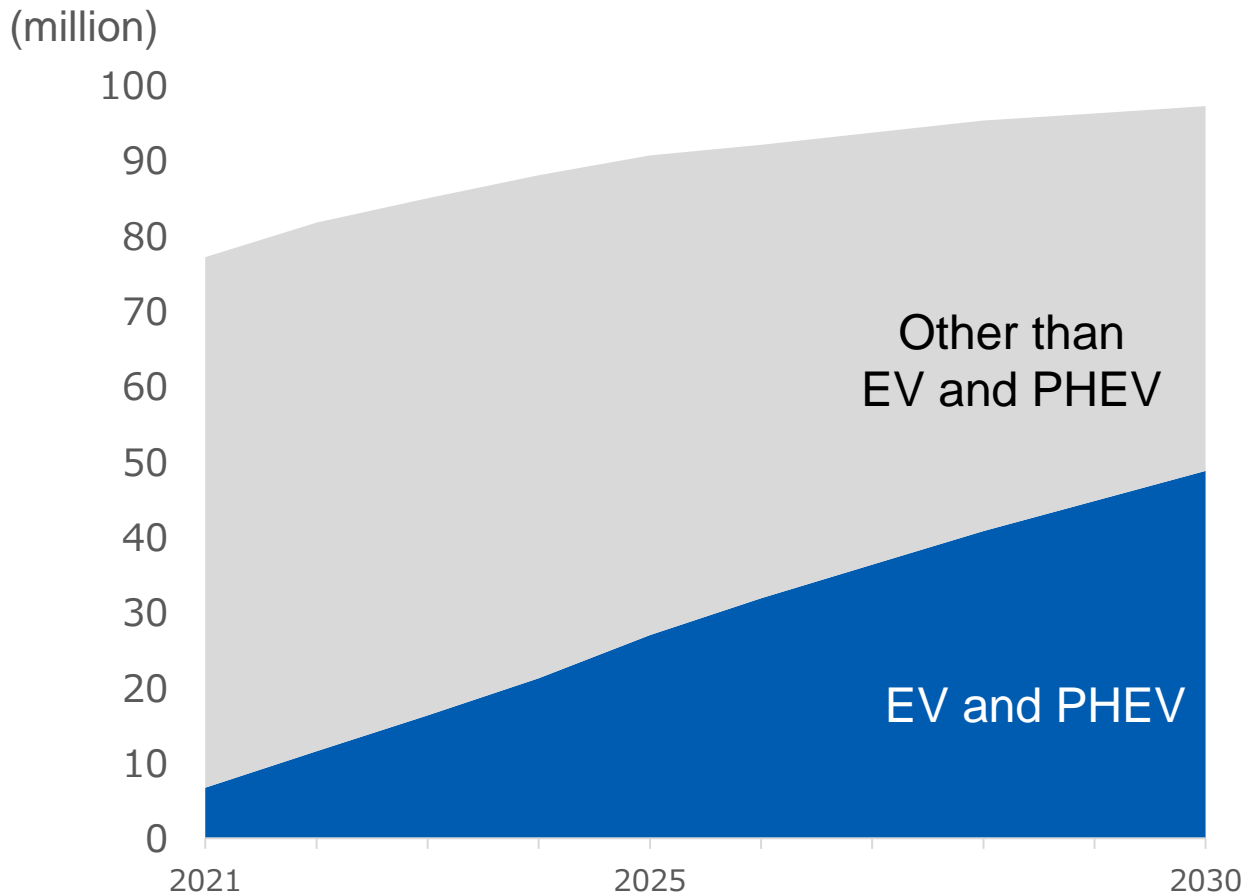


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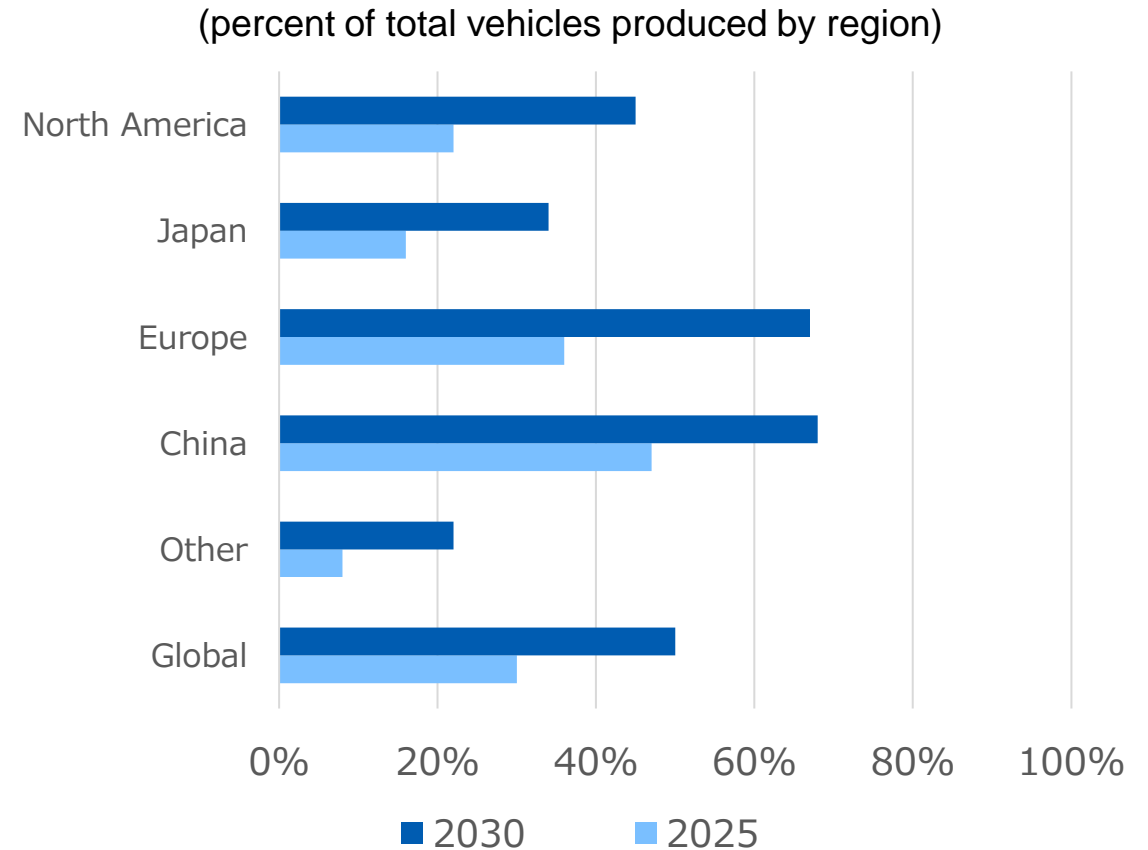
EV and PHEV market forecast

In 2030, about half of vehicles produced worldwide expected to be EV or PHEV

Worldwide vehicle production forecast



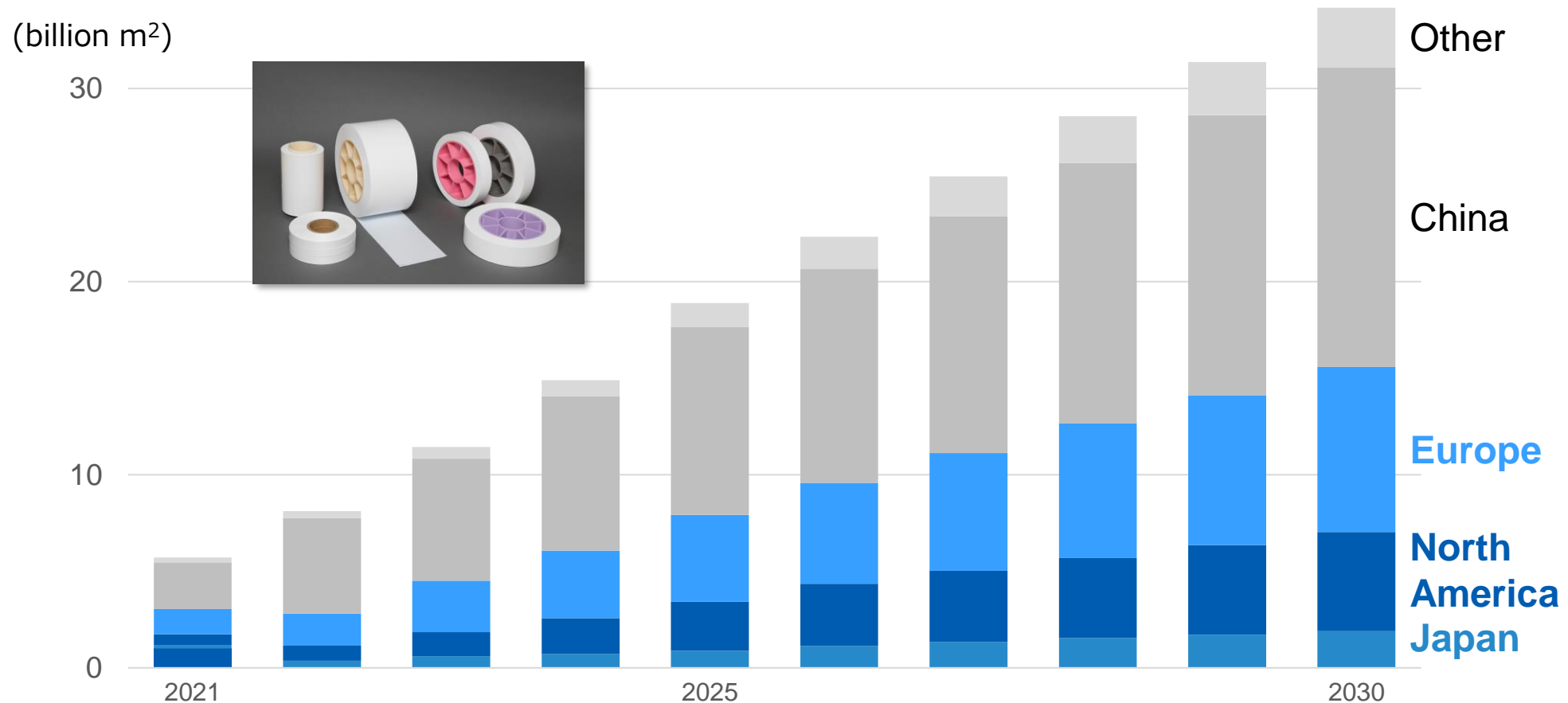
EV/PHEV production forecast by region



Automotive LIB separator market forecast

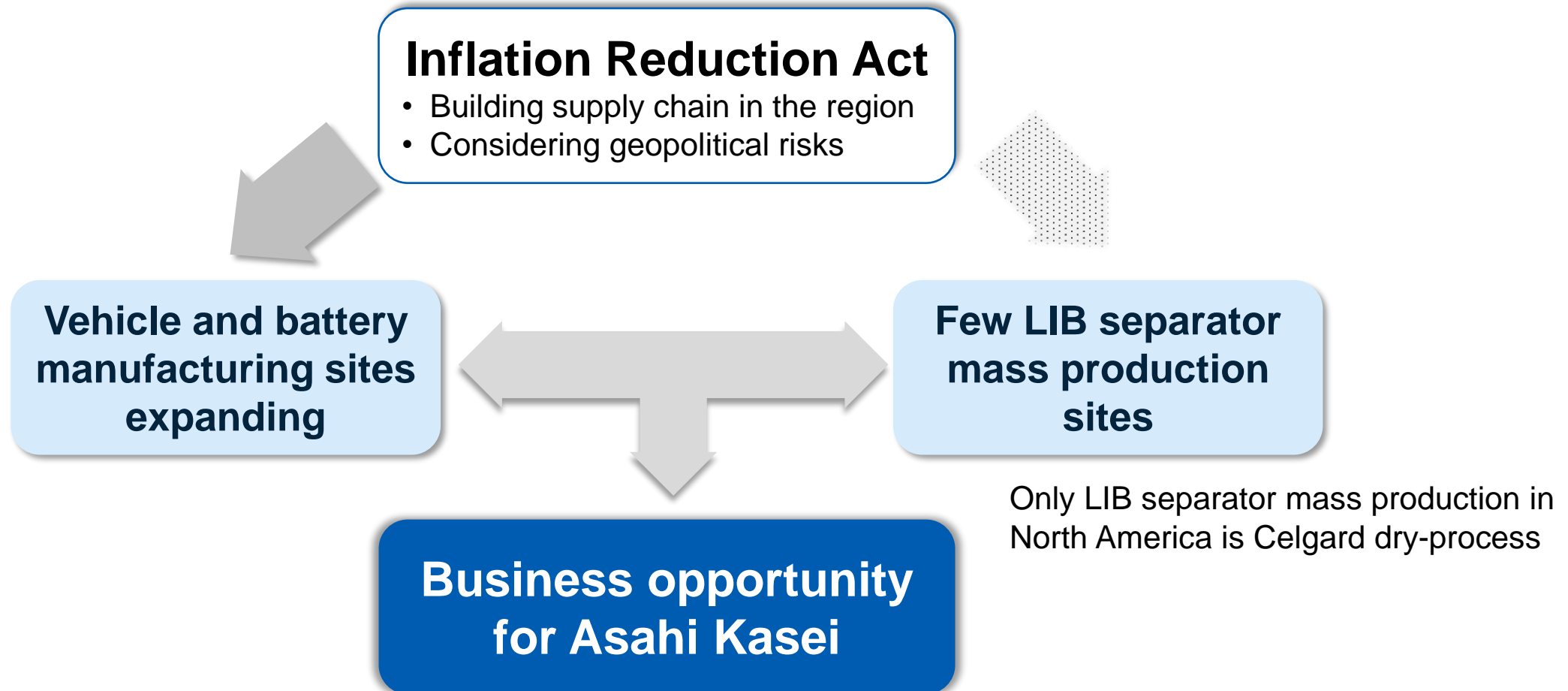
Global LIB separator market demand over 30 billion m² in 2023

Automotive LIB separator demand forecast



North American automotive LIB separator market situation

North America represents a major market opportunity



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Asahi Kasei Group separator business

The separator business is positioned to grow centered on Hipore; pursuing growth with North America as the main target market



Indispensable from the perspective of contributing to the world's carbon neutrality and sustainability



Pursuing medium- to long-term profit growth as a growth business

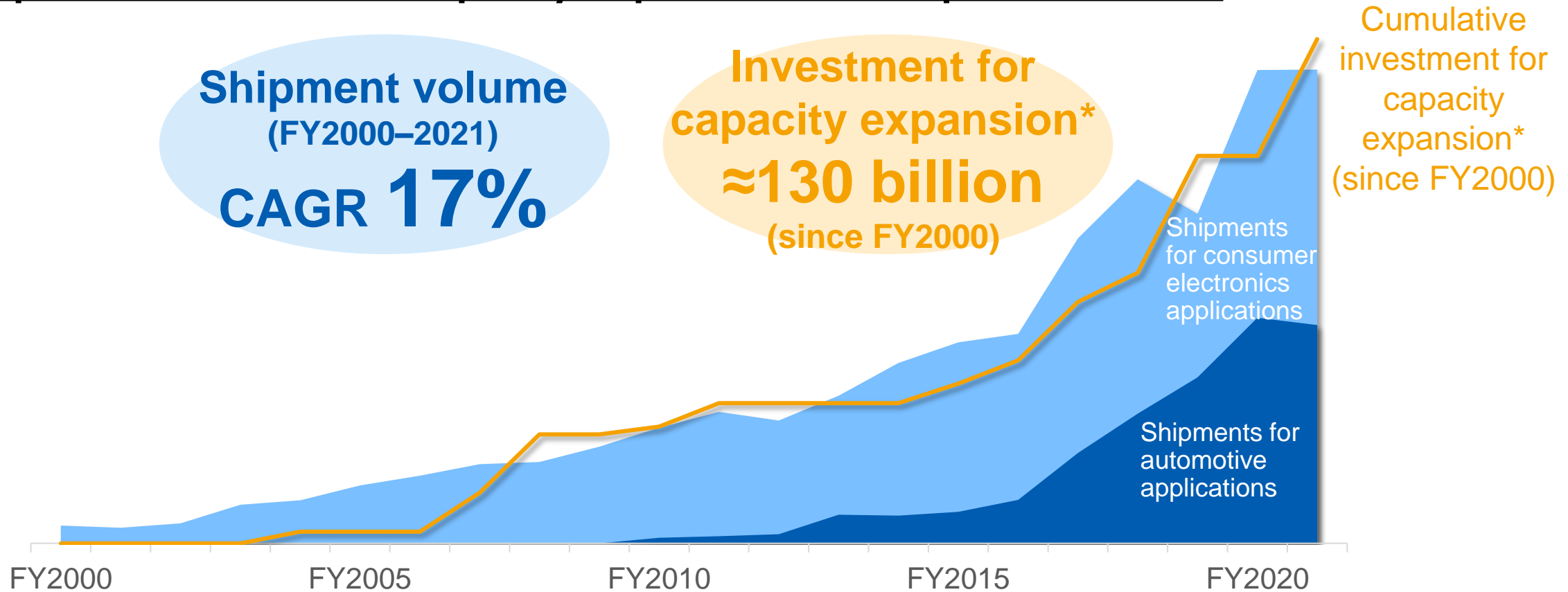


Studying alliances to further enhance competitiveness in the North American market

Hipore growth trajectory

Hipore expanding sales from consumer electronics to automotive applications through increased capacity in Japan

Hipore investment for capacity expansion and shipment volume



* Fiscal years of announcement

Hipore automotive market strategy

Maximum utilization of accumulated technology, know-how, and customer relationships

1

High value-added through product development based on high degree of coordination with customers

Providing LIB separator performance required for automotive applications

2

Superiority from perspective of sustainability through top-class environmental protection technology

Suppressing release of environmentally harmful substance/recycling of process material

3

Cost superiority through top-class productivity backed by accumulated production technology

Cost advantage in North America under equivalent competitive conditions

4

Enhancing supply capability and forming alliance in North America

AsahiKASEI

Creating for Tomorrow

THE COMMITMENT OF THE ASAHI KASEI GROUP:

To do all that we can in every era to help the people of the world make the most of life and attain fulfillment in living.

Since our founding, we have always been deeply committed to contributing to the development of society, boldly anticipating the emergence of new needs.

This is what we mean by “Creating for Tomorrow.”

