

Strengthening of petrochemical operations in Japan

February 25, 2014

Asahi Kasei Corp.

Asahi Kasei Chemicals Corp.

Asahi Kasei E-materials Corp.

1. Overview of strengthening of petrochemical operations in Japan
2. Measures to strengthen operations
 - AN business
 - Styrene business
 - ABS business
 - SB latex business
 - Epoxy resin business
3. Schedule

Operations to be strengthened

Strengthening petrochemical operations by establishing the optimum production configuration for stable earnings and enhanced competitiveness to cope with contracting domestic demand and price competition from products made overseas based on low-priced feedstock

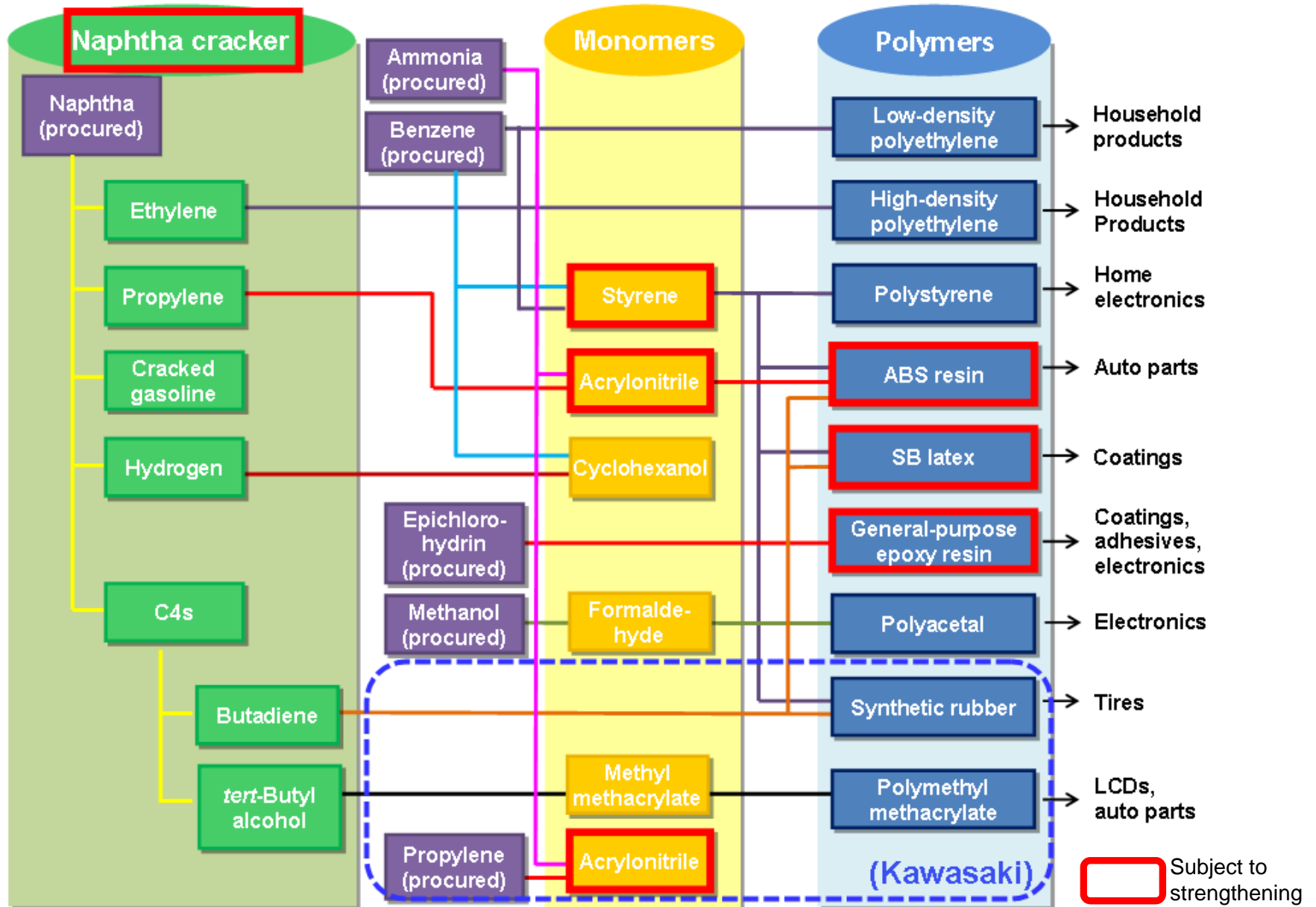
Business	Location	Capacity (thousand tons)	Major applications	Closure schedule
AN	Mizushima	200	Acrylic fiber, ABS, acrylamide, adiponitrile	August 2014
		100		
	Kawasaki	150		
	Korea	560		
	Thailand	200		
Styrene	Mizushima	320	Polystyrene, ABS, synthetic rubber	March 2016
		390		
ABS	Mizushima	65	Automotive, home electronics, office equipment	December 2015
SAN	Kawasaki	(undisclosed)	Automotive, home electronics, office equipment	—
SB latex	Mizushima	24	Paper coating, adhesives, paint	December 2015
	Kawasaki	36		
Epoxy resin	Mizushima	37	Coatings, adhesives, electronics	May 2015
	Fuji	(undisclosed)		

 Closure Dedication to another product

Effects of measures to strengthen operations

Business	Main effects
AN (acrylonitrile)	<ul style="list-style-type: none"> • Reduced fixed costs through closure of plant in Kawasaki and decrease to one plant in Mizushima • Higher operating rates at remaining plants (Mizushima, Korea, Thailand) • Improved rate of earnings through decreased exports from Japan • Establishment of optimum supply system with focus by geographic area
Styrene	<ul style="list-style-type: none"> • Reduced fixed costs through closure of one plant • Alleviation of risk of decreased earnings due to falling market prices, through decreased exports from Japan
ABS (acrylonitrile-butadiene-styrene)	<ul style="list-style-type: none"> • Enhanced cost competitiveness through closure of plant in Mizushima and transitioning to outside procurement of ABS base resin • Improved rate of earnings through increased sale of high-value added grades for automotive applications, cosmetics containers, etc.
SB latex (styrene-butadiene latex)	<ul style="list-style-type: none"> • Reduced fixed costs through closure of plant in Mizushima • Higher operating rates at remaining plant in Kawasaki • Improved rate of earnings through increased sale of high-performance grades for high-value added applications
Epoxy resin	<ul style="list-style-type: none"> • Improved overall rate of earnings through withdrawal from general-purpose business having little prospect of recovery and concentration of management resources on high-value added business

Mizushima petrochemical operations



Feedstock balance in Mizushima

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(thousand tons)

Feedstock	Supply-demand	Plant	Capacity (feedstock volume)	At 80% operation	Capacity (feedstock volume)
Ethylene	Supply	Naphtha cracker	470 (470)	(380)	270 (270)
		Polyethylene	240 (240)	(190)	240 (240)
	Demand	Styrene	710 (210)	(170)	390 (120)
			— (450)	(360)	— (350)
Propylene	Supply	Naphtha cracker	310 (310)	(240)	180 (180)
	Demand	AN	200 (210)	(170)	200 (210)
			100 (110)	(84)	0 (0)
			— (320)	(250)	— (210)
Butadiene	Supply	Naphtha cracker	75 (75)	(60)	43 (43)
	Demand	Synthetic rubber	170 (100)	(77)	170 (100)
		ABS	65 (13)	(10)	0 (0)
		SB latex	60 (24)	(19)	36 (14)
			— (130)	(100)	— (110)



 Subject to strengthening

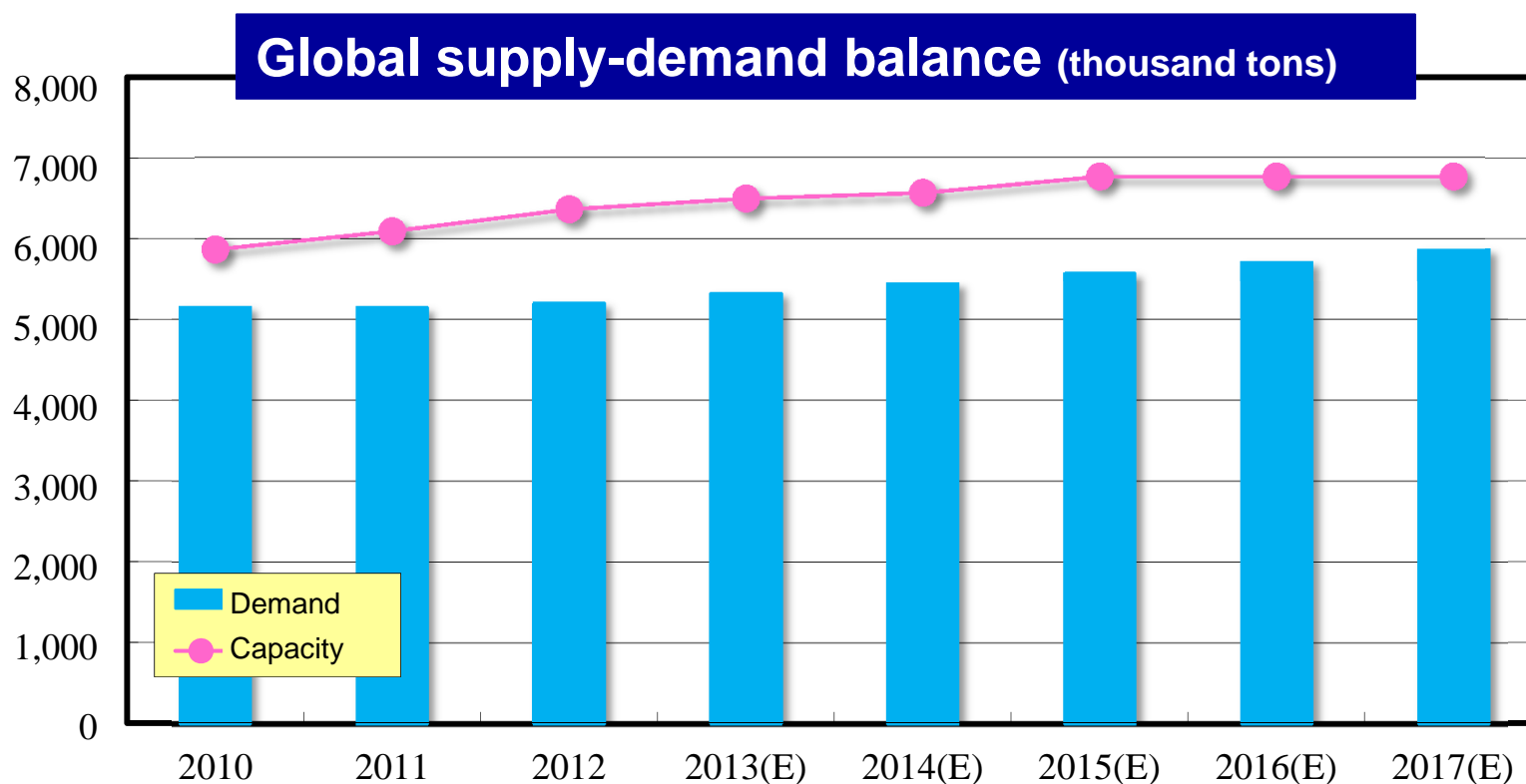
Effect of strengthening

Net sales, operating income	<ul style="list-style-type: none"> • From fiscal 2016 onward, net sales are expected to decrease by approximately ¥40 billion mainly due to the naphtha cracker and styrene • Operating income is expected to improve by over ¥5 billion
Extraordinary loss	<ul style="list-style-type: none"> • In fiscal 2013, an operating loss of ¥18.0 billion is planned for loss on disposal of plant assets, cost of removal, etc. • The net income forecast announced on February 5, 2014, is revised downward by ¥12.0 billion to ¥65.0 billion
Capital expenditure	<ul style="list-style-type: none"> • From fiscal 2014 onward, approximately ¥3 billion is expected, mainly for pipelines and infrastructure (details under study)
Impact on employment	<ul style="list-style-type: none"> • Approximately 250 employees are in affected workplaces in Mizushima and Kawasaki • They are scheduled to be absorbed by reassignment to other workplaces, curtailing the hiring of new employees, etc. (details under study)

Outlook for Mizushima Works	Continuing to pursue new possibilities as the heart of petrochemical operations of the Asahi Kasei Group with a naphtha cracker, where R&D and validation give birth to world-leading technology
Outlook for Kawasaki Works	Further strengthening based on safety, stability, and security as a core production site of the Asahi Kasei Group advancing high-added value with exceptional people, equipment, and technology

AN operating climate

- ✓ Decrease in demand due to a slowdown in the Chinese economy and the economic crisis in Europe
 - ✓ Oversupply of AN with expansion and construction of plants in China
 - ✓ Rising market price of propylene feedstock
- Likelihood of sluggish market prices and deterioration of price spread due to softening supply-demand balance



Source: Asahi Kasei estimate

Strengthening of AN business

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Current situation

- ✓ Continuation of the current 450,000 tons/year production infrastructure in Japan requires exporting
- ✓ Exporting from less-competitive plants in Japan runs the risk of pressure on earnings
- ✓ Some domestic facilities are aging, and maintenance costs are relatively high



Strengthening

- ✓ Closure of 150,000 ton/year plant in Kawasaki in August 2014
- ✓ 100,000 ton/year plant in Mizushima, used to produce another product as well, to be dedicated to production of the other product

Effects:

- Reduction of fixed costs through closure of plant in Kawasaki and decrease to one plant in Mizushima
- Higher operating rates at remaining plants (Mizushima, Korea, Thailand)
- Higher rate of earnings through decreased exports from Japan
- Optimum supply system with focus by geographical area

Closure of AN plant in Kawasaki

✓ Closure of 150,000 ton/year plant in Kawasaki in August 2014

Reasons:

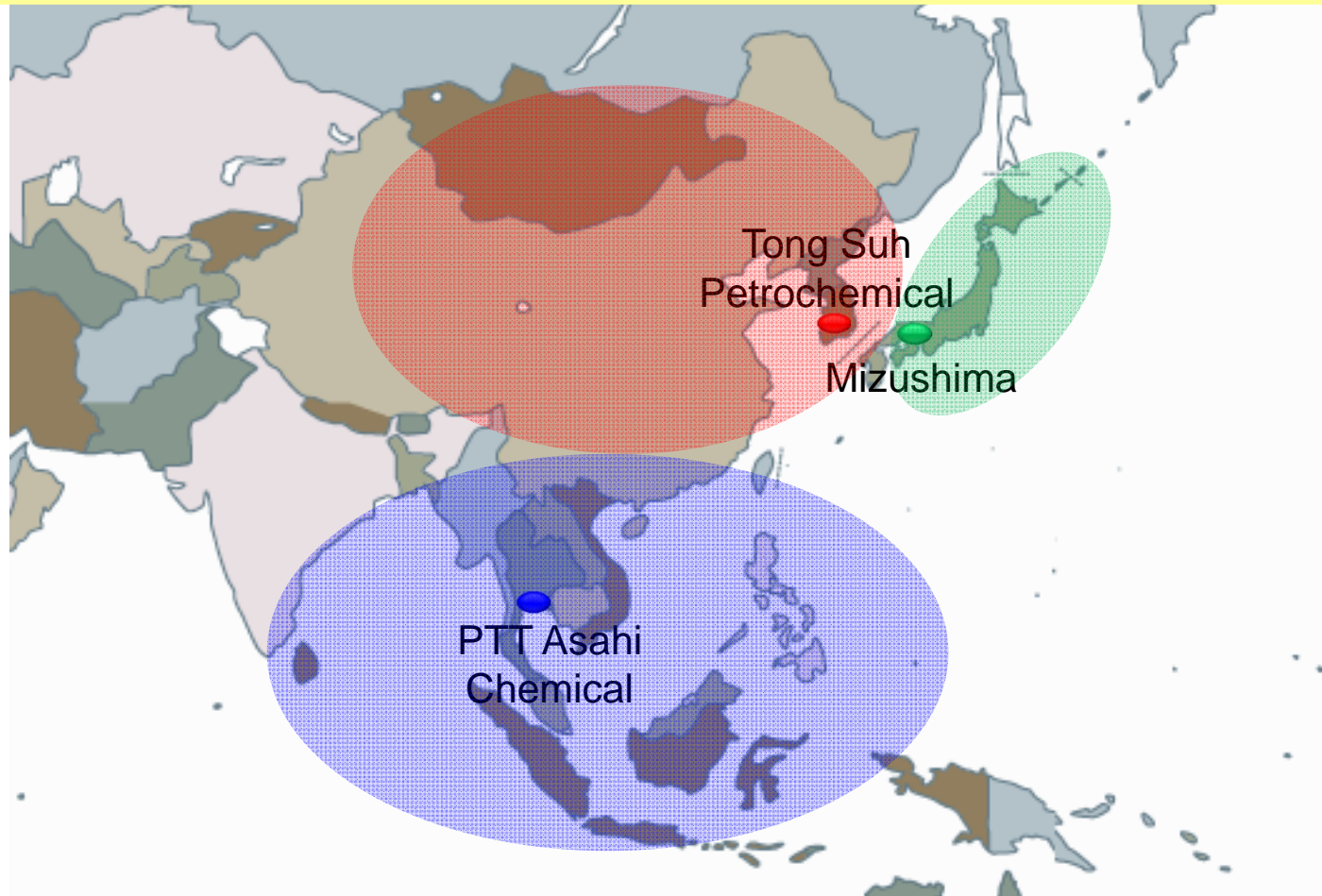
- As the smallest AN facility in the Asahi Kasei Group, it has the highest relative fixed costs, and the lowest competitiveness
- Age of facilities (started up in 1964) will likely lead to increased maintenance costs in the future

Asahi Kasei Group AN Capacity

Country	Site/affiliate	Capacity (thousand tons)		Note
		Current	After strengthening	
Japan	Kawasaki	150	0	Closure in August 2014
	Mizushima 1st plant	200	200	Largest capacity in Japan, "mother factory" of the Asahi Kasei Group
	2nd plant	100	0	Dedicated to another product
		450	200	Capacity reduction to 200,000 tons/year
Korea	Tong Suh Petrochemical	560	560	<ul style="list-style-type: none"> • Expanded capacity started up in February 2013 • World's largest capacity at a single site • Merit of scale in byproducts
Thailand	PTT Asahi Chemical	200	200	<ul style="list-style-type: none"> • Started up in January 2013 • World's only plant using low-cost propane feedstock
Total capacity		1,210	960	

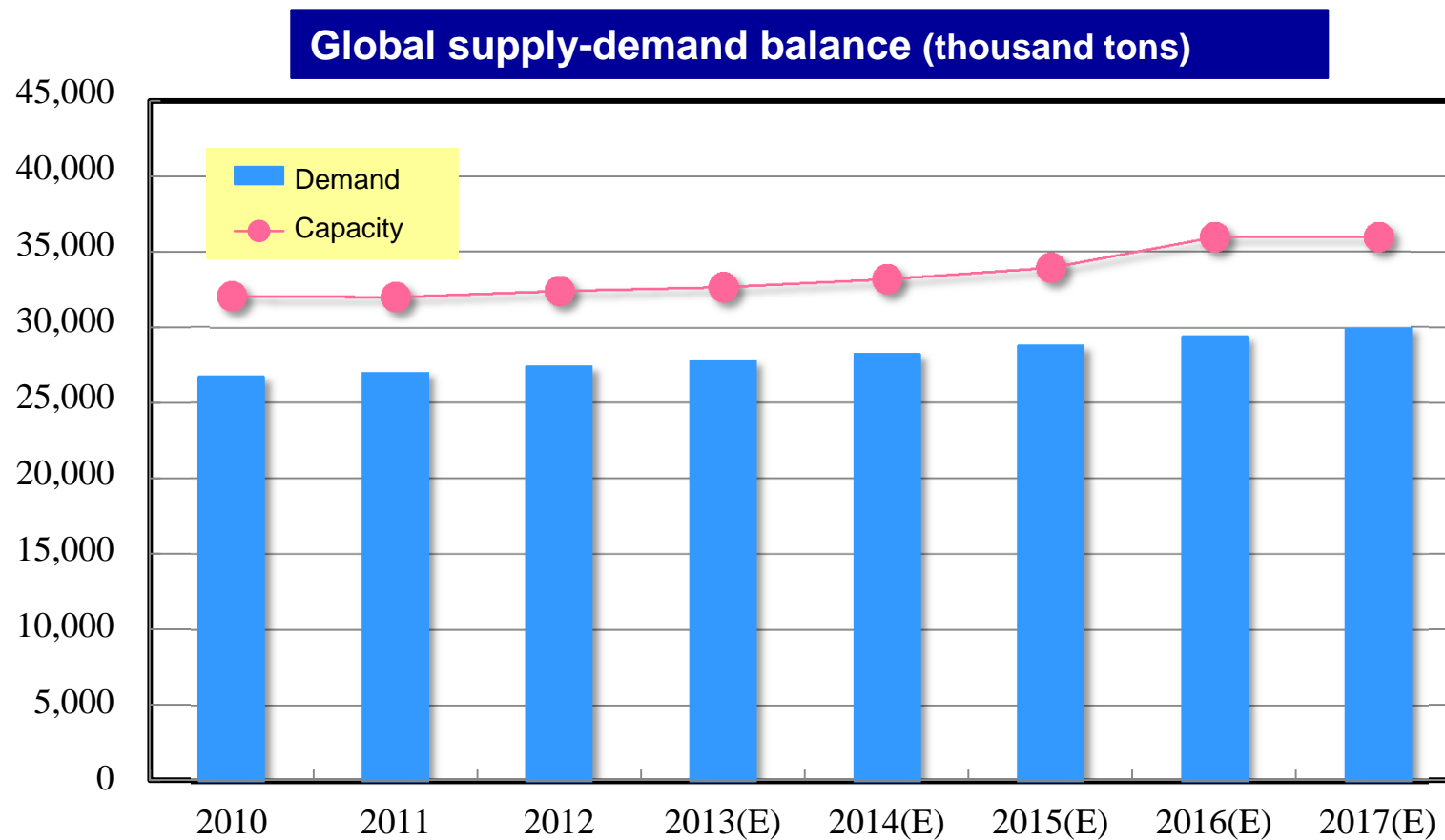
AN supply by geographical area

- ✓ Product from Mizushima supplied to the market in Japan, from Korea (Tong Suh Petrochemical) to the market in Korea, Taiwan, and China, from Thailand (PTT Asahi Chemical) to the market in ASEAN countries
- ✓ Production costs aligned with market prices in each geographical area



SM operating climate

- ✓ Global supply-demand balance continues to be loose
- ✓ The expansion and construction of plants in China and Korea are planned, which will lead to further oversupply



Source: CMAI and Asahi Kasei estimate

Strengthening of styrene business

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Current situation

- ✓ Continuation of the current 710,000 ton/year production infrastructure requires exporting from Japan
- ✓ Exports are susceptible to market price fluctuations, posing the risk of pressure on earnings
- ✓ Some facilities are aging, and maintenance costs are relatively high



Strengthening

- ✓ Closure of 320,000 ton/year plant in Mizushima in March 2016
Effect: Reduction of fixed costs through closure of one of two plants
- ✓ Decreased exports by giving priority to the domestic Japanese market and in-house consumption
Effect: Alleviation of risk of decreased earnings due to falling market prices

Domestic styrene supply/demand balance

- ✓ Closure of 320,000 ton/year plant in Mizushima in March 2016
→ Total capacity in Japan will decrease to some 2 million tons/year
- ✓ Domestic demand in Japan estimated to be some 1.4 million tons in 2013

Decreased styrene exports

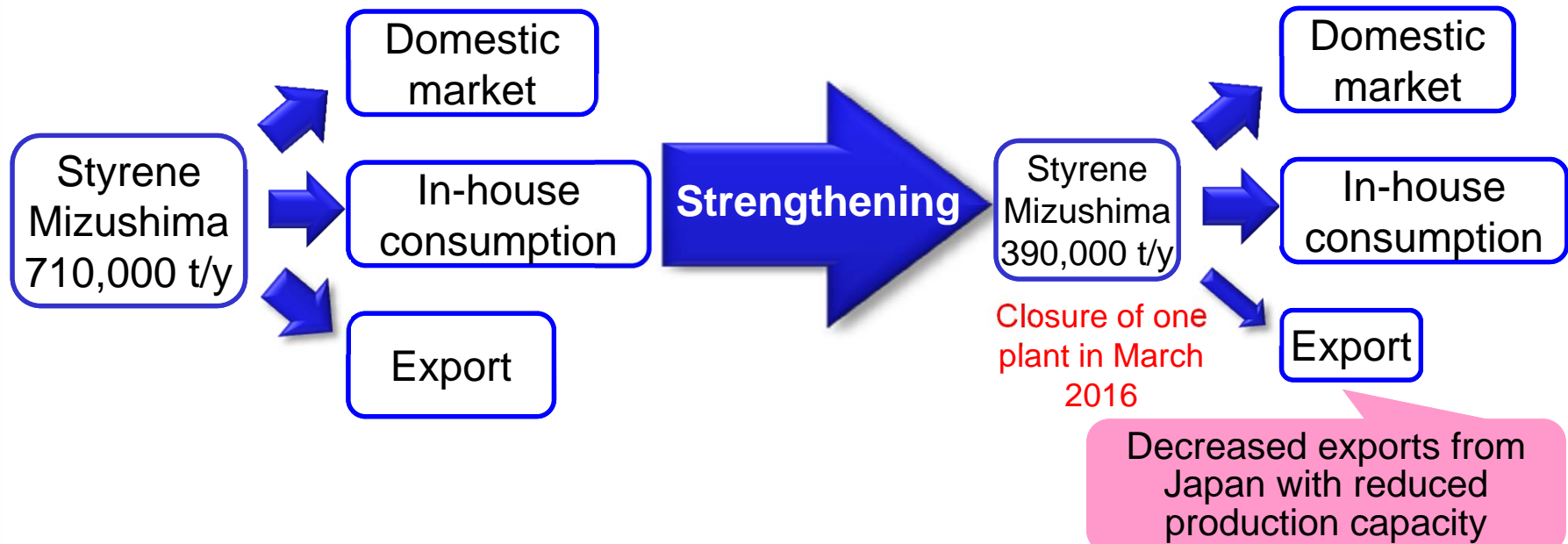
Currently

- ✓ High ratio of exports, which are susceptible to market price fluctuations
- ✓ Risk of decreased earnings when market prices fall



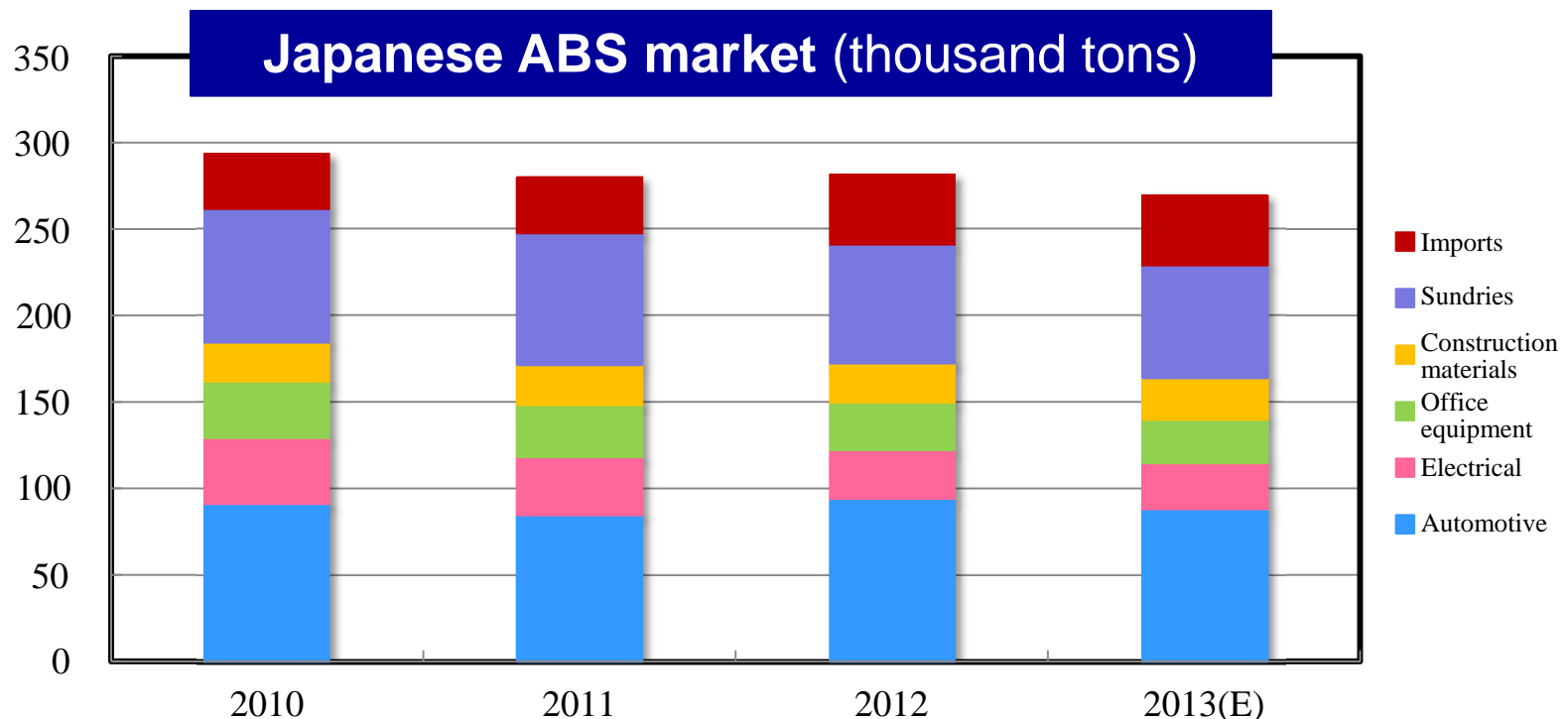
Strengthening

- ✓ Priority given to domestic Japanese market and in-house consumption
- ✓ Large decrease in exports with closure of one plant, alleviation of risk



ABS operating climate

- ✓ Although demand in automotive applications remains firm, the domestic Japanese market for ABS is contracting with sluggish demand in other applications including electrical and electronic
 - ✓ Domestic general-purpose ABS is uncompetitive due to high production costs
 - ✓ Likelihood of greater influx of low-priced imports due to the expansion of capacity and construction of new plants in Asia
- Risk of further deterioration of cost competitiveness



Source: Japan ABS Industry Association

Strengthening of ABS business

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Current situation

- ✓ ABS plant operating rate remains low
- ✓ Cost competitiveness is inferior to overseas products



Strengthening

- ✓ Closure of the 65,000 ton/year ABS plant in Mizushima in December 2015
Effect: Reduction of fixed costs
- ✓ Transition to ABS base resin procured from outside and compounding with highly differentiated* in-house SAN to produce ABS resin
* Outstanding colorability, transparency, and miscibility
Effect: Enhanced cost competitiveness
- ✓ Expanded sales of high-value added grades for automotive applications, cosmetics containers, etc., in growing Asian markets
Effect: Improved rate of earnings

Domestic ABS supply/demand balance

- ✓ Closure of 65,000 ton/year plant in Mizushima in December 2015
→ Total capacity in Japan decreasing to 670,000 tons/year
- ✓ Domestic shipments in Japan were 230,000 tons and exports were 130,000 tons in 2013 (Japan ABS Industry Association)

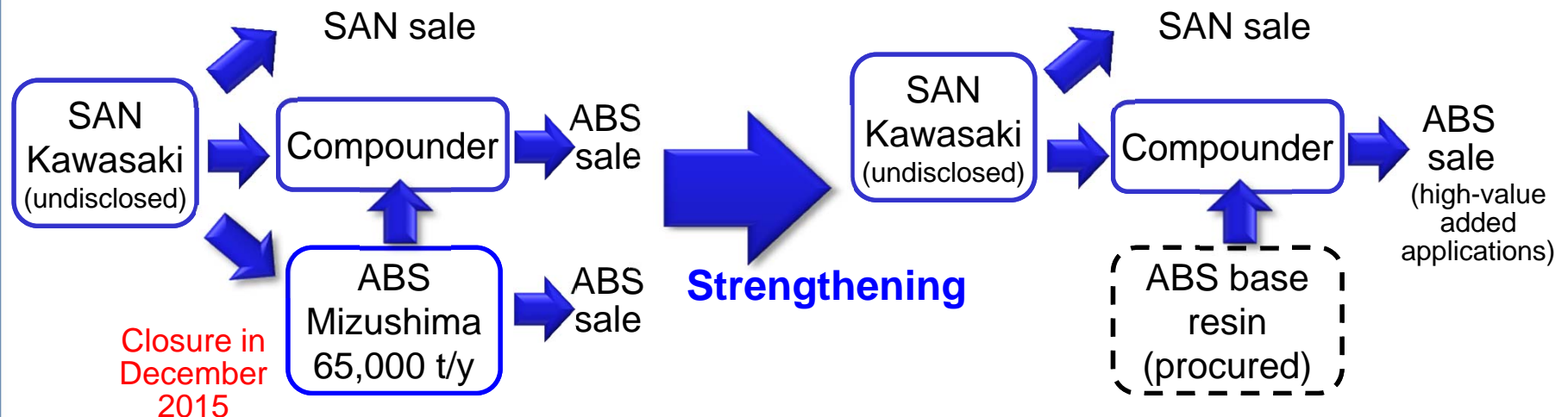
Transition of ABS production flow

Currently

- ✓ Producing ABS resin in Mizushima by compounding ABS base resin produced at plant in Mizushima with SAN produced at plant in Kawasaki

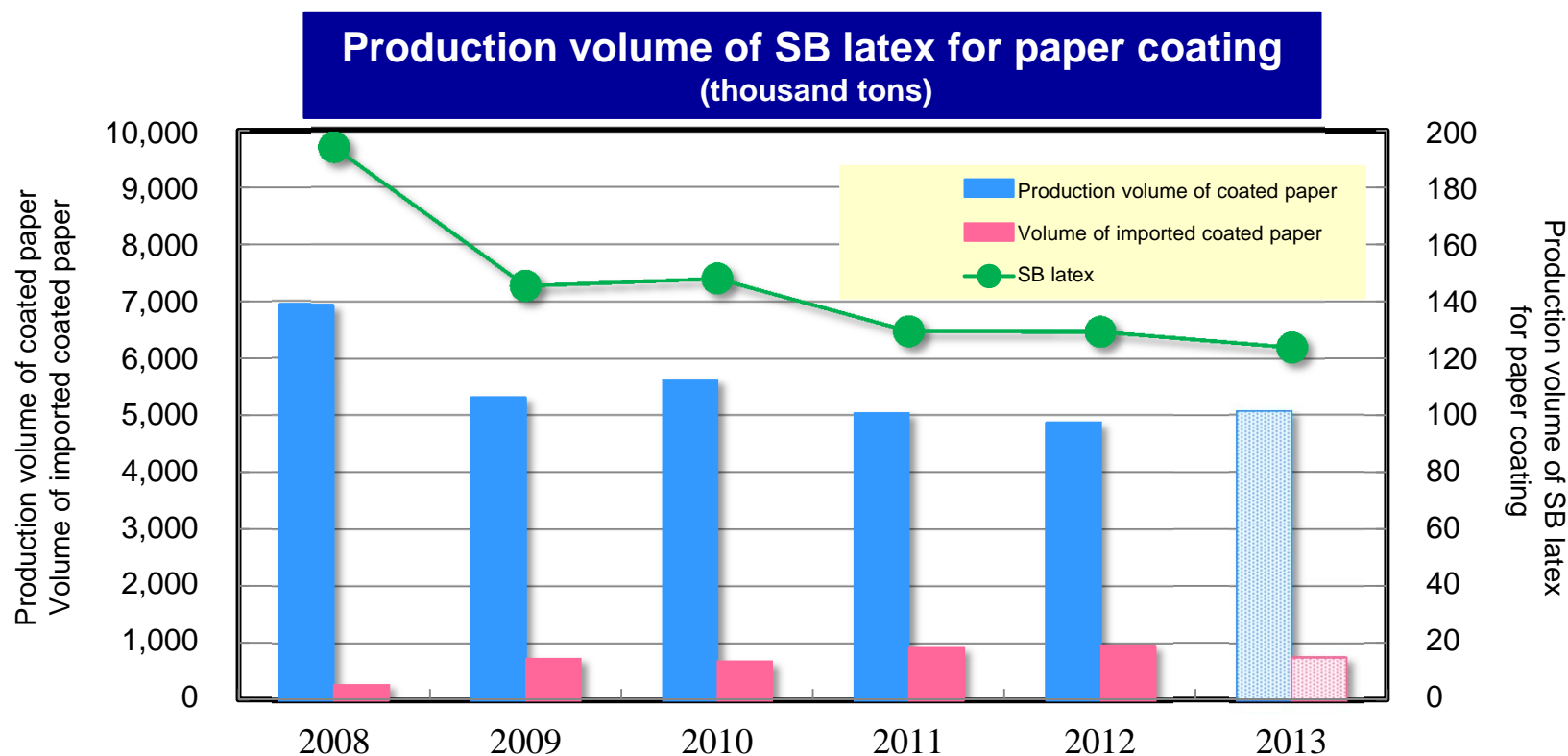
Strengthening

- ✓ Transition to **ABS base resin procured from outside** and compounding with **highly differentiated in-house SAN** to obtain greater cost competitiveness
- ✓ Expanded sales of **high-value added grades for automotive applications, cosmetics containers, etc., in Asian markets (especially China)**, improved rate of earnings



SB latex operating climate

- ✓ Demand for coated paper declining with spread of digital documents
- ✓ Influx of low-priced imported coated paper from 2008 to 2012 due to strong yen, domestic Japanese production of coated paper declining
 - Contraction of demand for SB latex for paper coating, which accounts for 80% of SB latex market
- ✓ Price of feedstock butadiene increasing from 2011 to 2012
 - Likelihood of further decline in demand for SB latex



Source: Japan Paper Association data, and The Japan Rubber Manufacturers Association data

Strengthening of SB latex business

Current situation

- ✓ Low operating rates at SB latex plants
- ✓ Price of feedstock butadiene greatly affects the rate of earnings



Strengthening

- ✓ **Closure of 24,000 ton/year plant in Mizushima in December 2015** and concentrating on plant in Kawasaki
Effects:
 - Reduction of fixed costs
 - Higher operating rates at plant in Kawasaki by concentrating on one plant
- ✓ **Increased sale for high-value added applications**
Sale for paper coating will continue as currently
Effects:
 - Improved rate of earnings through increased sale of high-performance grades for high-value added applications

Supply-demand balance in Japan
(thousand tons)

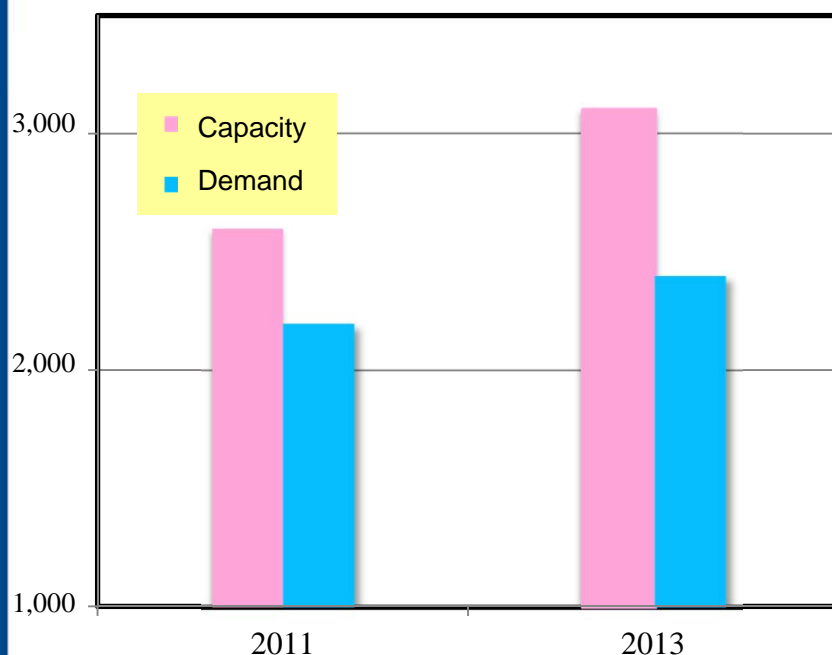
		2013 Forecast
Demand	Paper coating	124
	High-performance grades	21
	Exports	3
		148
Total capacity in Japan		198
Operating rates		75%

Source: Asahi Kasei estimate

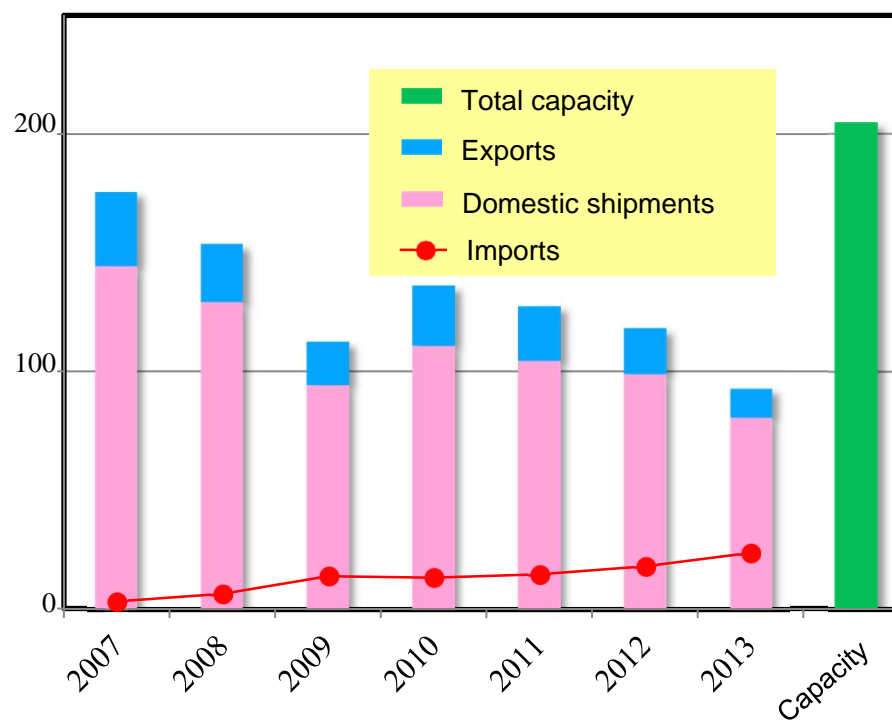
Epoxy resin operating climate

- ✓ Production capacity increases are advancing in China amid a global oversupply, and the supply-demand gap is widening
- ✓ Growing influx of general-purpose grades into the Japanese market from Korea, Taiwan, and China (continues even with the weaker yen)

**Global supply-demand balance
(thousand tons)**



**Supply-demand balance in Japan
(thousand tons)**



Realignment of epoxy resin business

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Current situation

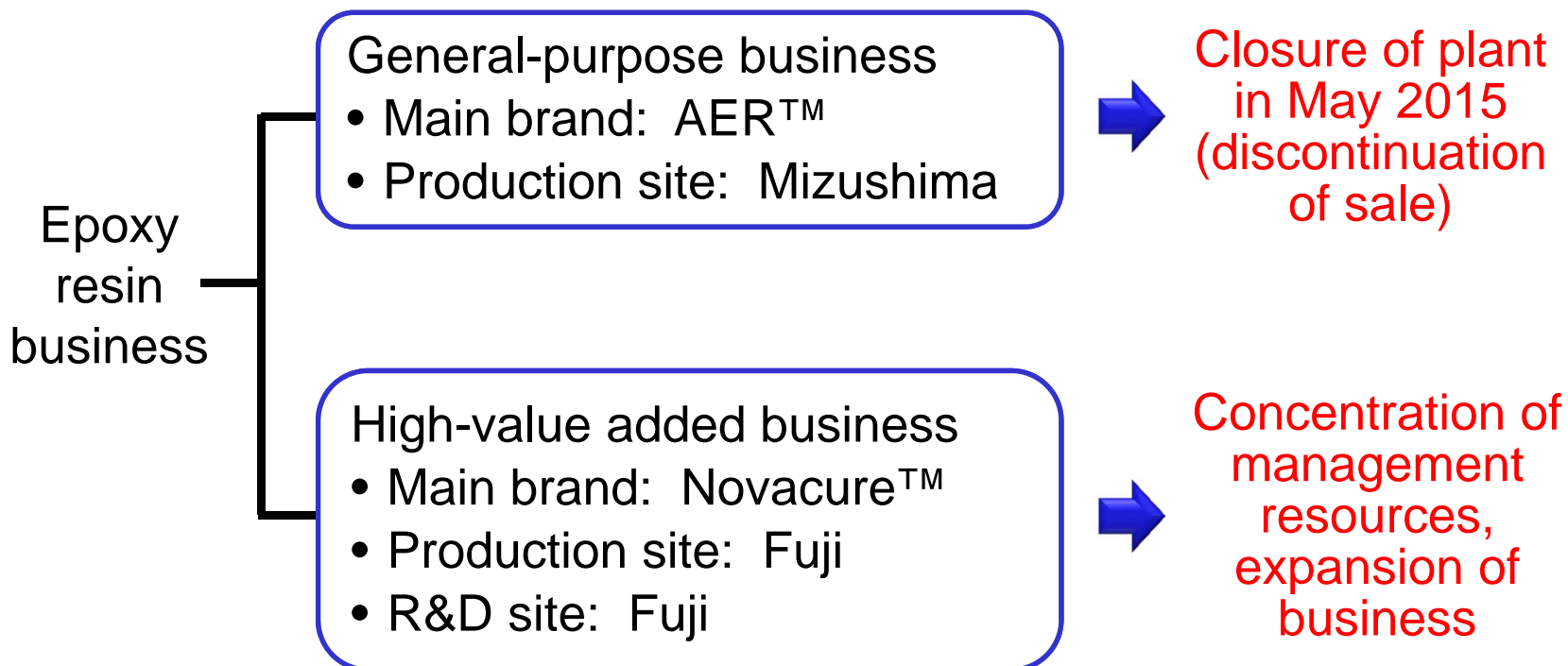
- ✓ Overcapacity in Japan and fierce competition from low-priced imports, difficulty to secure price spreads, little prospect of recovery



Strengthening

- ✓ Closure of 37,000 ton/year plant in Mizushima in May 2015
- ✓ Discontinuation of production and sale of general-purpose epoxy resin
Effect: Withdrawal from general-purpose epoxy resin business having little prospect of recovery
- ✓ Realignment of epoxy resin business to focus on high-value added products such as Novacure™ latent curing agent
Effect: Improved overall rate of earnings from epoxy resin business

Current configuration and future direction



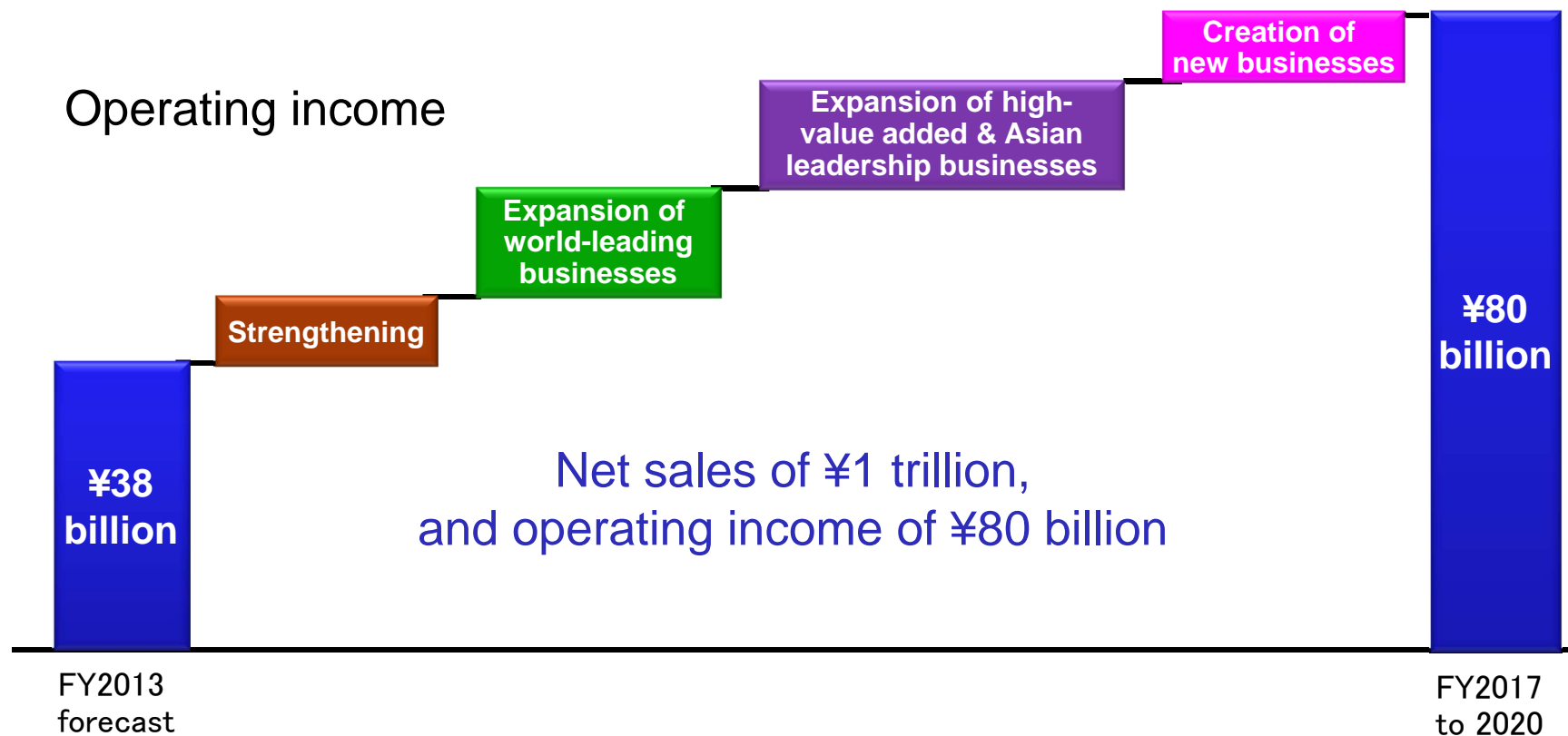
Schedule

	Fiscal 2014		Fiscal 2015		Fiscal 2016		Fiscal 2017	
	H1	H2	H1	H2	H1	H2	H1	H2
Naphtha cracker	Preparation to establish joint venture							
	Preparation to close cracker (equipment work, etc.)							
					April 2016 unification on cracker of Mitsubishi Chemical			
					Preparation and removal work (until fiscal 2019)			
AN	Preparation to close Kawasaki AN plant (equipment work, etc.)							
	August 2014 closure of Kawasaki AN plant							
					Preparation and removal work			
Styrene	Preparation to close one Mizushima styrene plant (equipment work, etc.)							
					March 2016 closure of one Mizushima styrene plant			
					Preparation and removal work (until fiscal 2018)			
ABS	Preparation to close Mizushima ABS plant (equipment work, etc.)							
					December 2015 closure of Mizushima ABS plant			
					Preparation and removal work			
SB latex	Preparation to close SB latex plant (equipment work, etc.)							
					December 2015 closure of Mizushima SB latex plant			
					Preparation and removal work			
General-purpose epoxy resin	Continuing production							
					May 2015 closure of Mizushima general-purpose epoxy resin plant			
					Preparation and removal work			

Growth strategy of Asahi Kasei Chemicals

In addition to the measures for strengthening, Asahi Kasei Chemicals is focused on the following three strategies targeting net sales of ¥1 trillion, and operating income of ¥80 billion in FY2017–2020

- Expansion of world-leading businesses
- Expansion of high-value added businesses and businesses which can establish leadership in Asian markets
- Creation of new businesses



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.”