

# Mid-term Management Plan

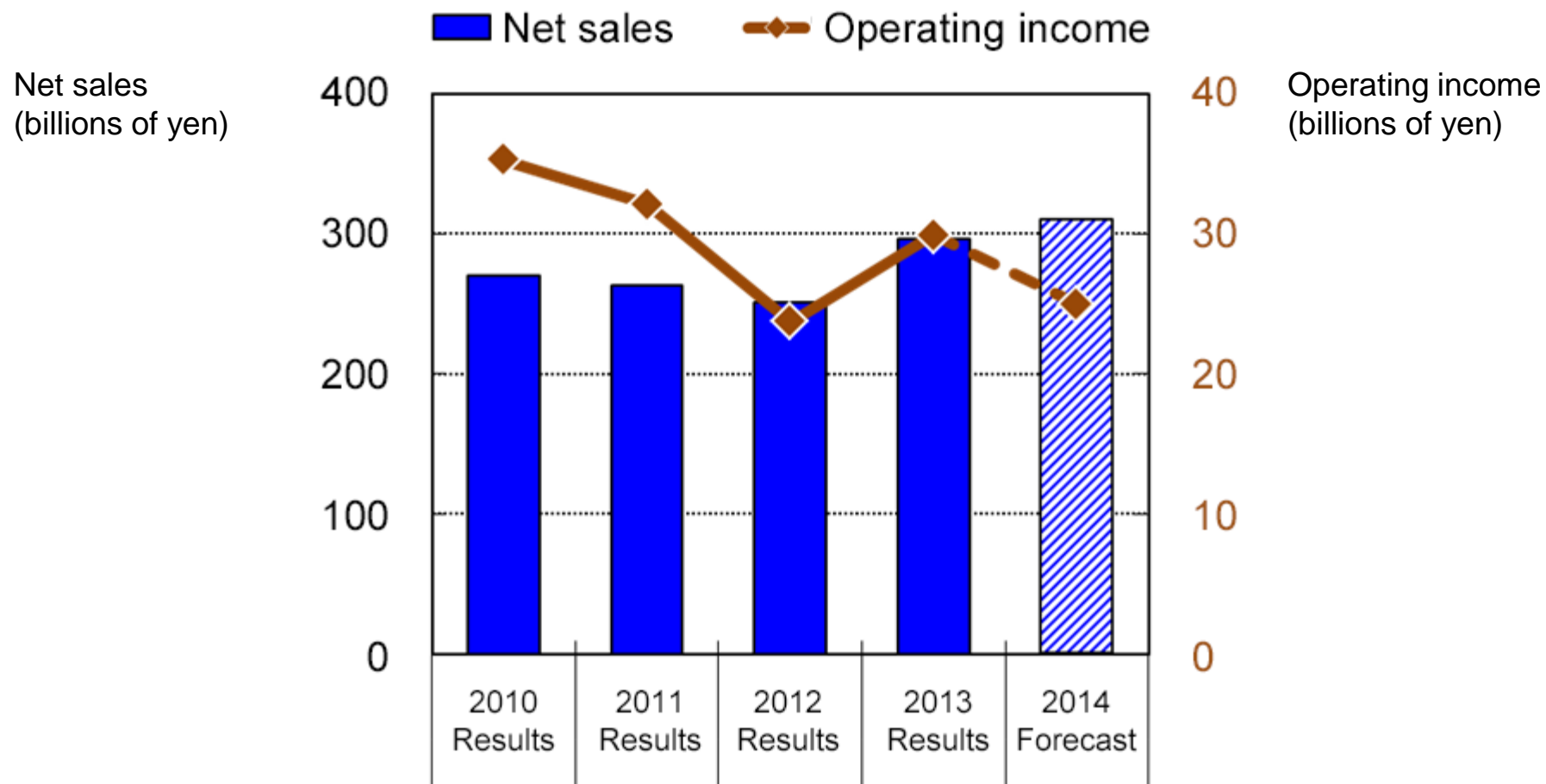
## ***SZ-20*** Phase II Current Status



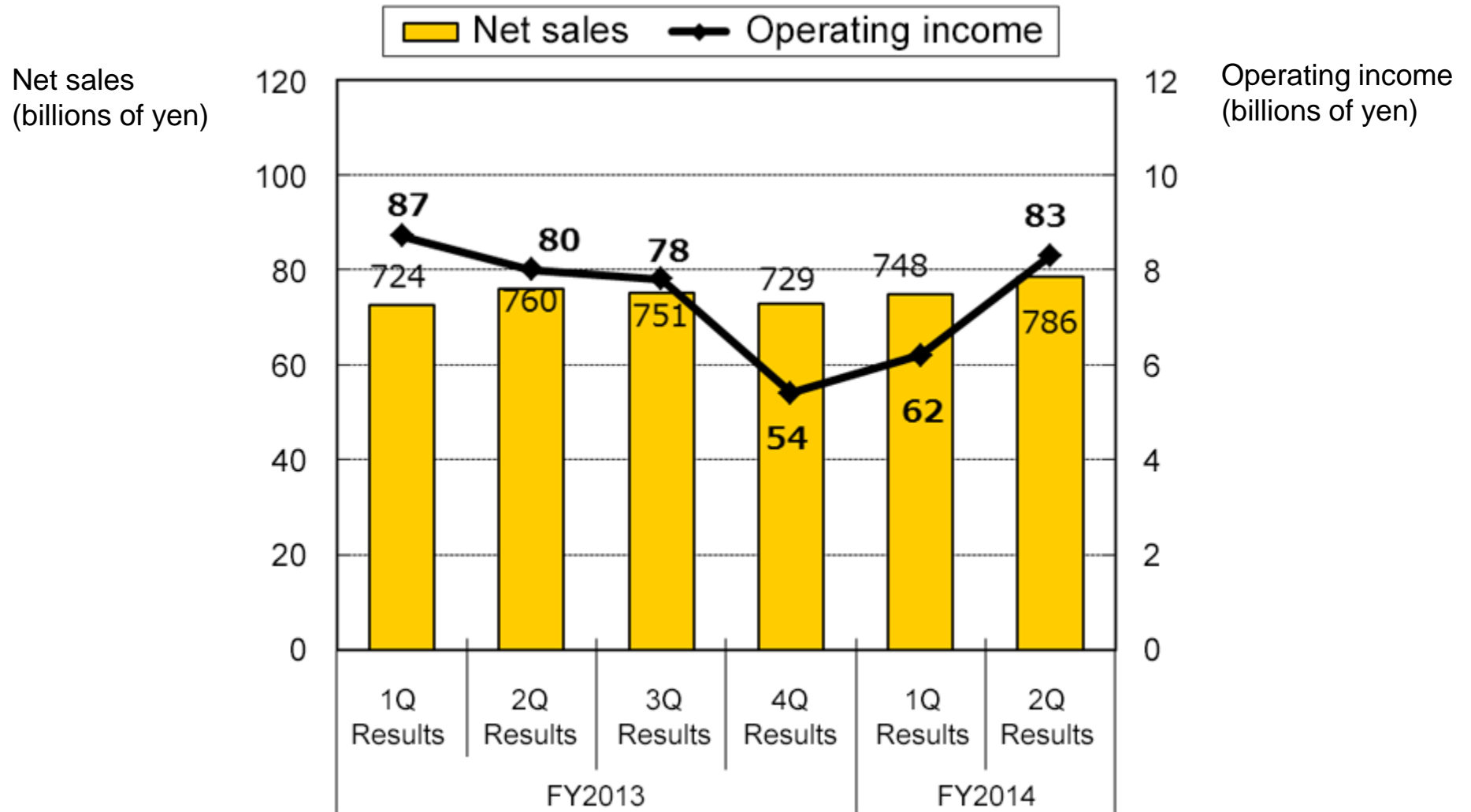
Kimiaki Tanaka  
President

November 6, 2014

1. **FY2014 Results and Business Environment**
2. **Mid-term Management Plan**  
*SZ-20* Phase II for FY2014 through FY2016
3. **Business Topics**
4. **Performance Goals**



Exchange rate (yen/USD)	86	79	82	100	100
Domestic naphtha price (1,000 yen/kl)	48	55	58	67	68

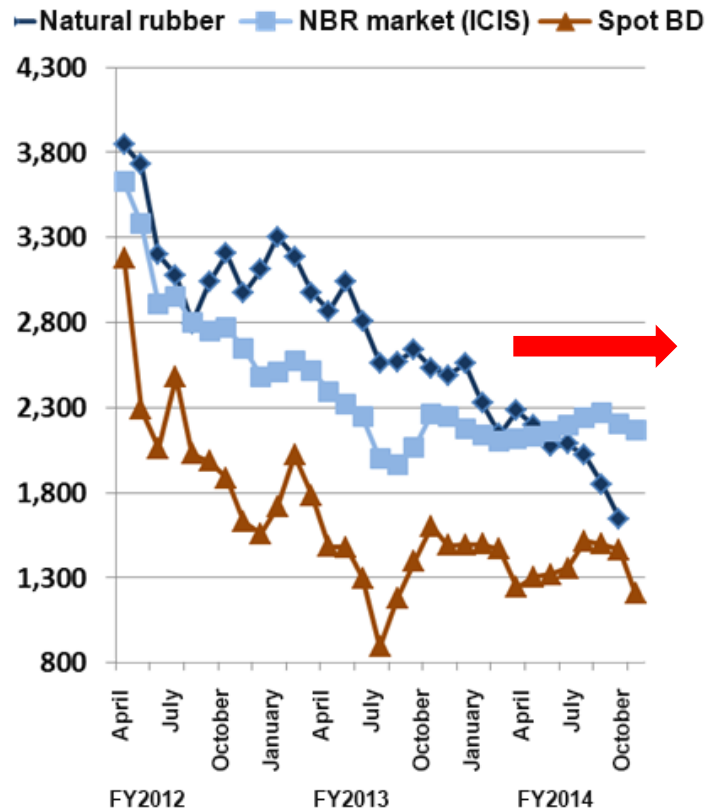


Exchange rate (yen/USD)	98	98	100	103	102	103
Domestic naphtha price (1,000 yen/kl)	66	64	68	72	70	71

## Synthetic rubber market stalls; uncertain outlook on exchange rates and raw material prices

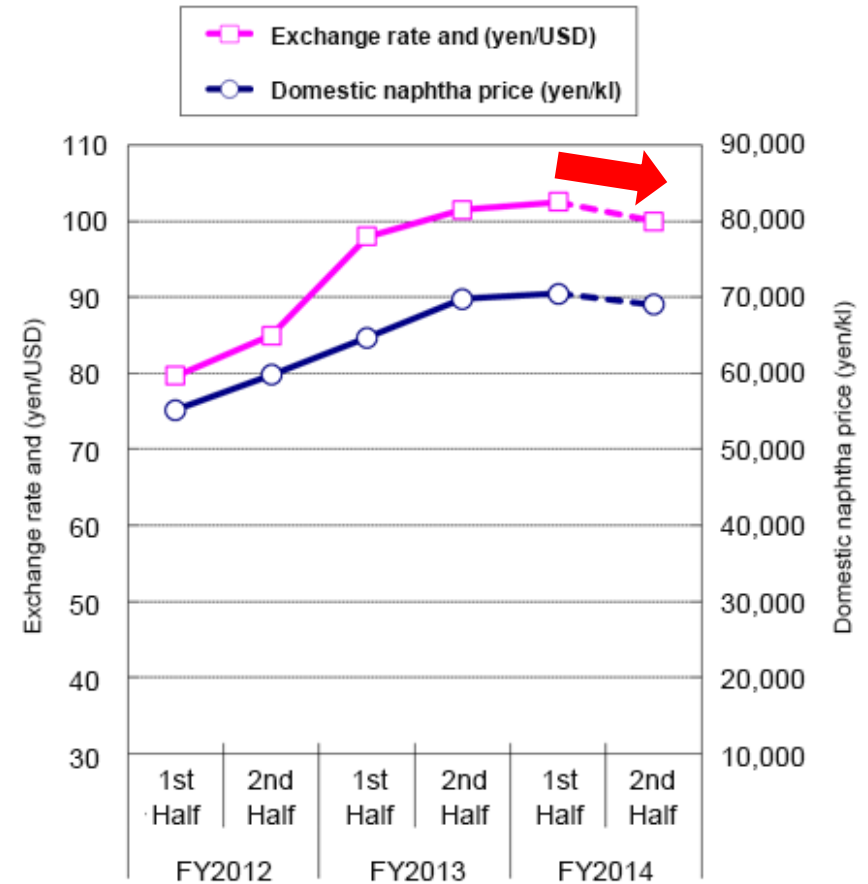
### Natural rubber, synthetic rubber and BD markets

(USD/mt)



Natural rubber market: Singapore Commodity Exchange nearby contract price for RSS #3 grade rubber (source: Monthly Statistics Report for Synthetic Rubber)  
 NBR market: CFR Southeast Asia (source: ICIS)  
 Spot BD: CFR Taiwan (source: PLATTS)

### Exchange rate and domestic naphtha price



Exchange rates (source: Mizuho Bank, Ltd.)  
 Domestic naphtha price (source: calculation by ZEON based on trade statistics)

## Corporate Philosophy

ZEON is contributing to the preservation of the Earth and the prosperity of the human race.

## ZEON CSR Policy

- We will ensure compliance and meet society's needs for safety and security.
- We will contribute to sustainably developing society and protecting the global environment through our corporate activities.
- We will ensure that each and every ZEON person is aware of CSR and acts accordingly.

Key sense of value

Speed

Dialogue

Social contribution

Treasured ZEON characteristics

Mutual trust and fellowship

Enterprise Blueprint for 2020

ZEON makes the future today through the power of chemistry

Mid-Term Management Plan

**SZ-20**

Phase II

Enhanced Corporate Value



- Change
  - Promote reform and improvement
  - Change management structure
  - Cultivating corporate culture
- Progress management and speedy response

Enterprise Blueprint for 2020

**ZEON makes the future today through the power of chemistry**

Consolidated net sales:  
500 billion yen

2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 (FY)

**Phase II**

**SZ-20**

**SZ-20**

## Further Strengthen our Elastomer Materials and Specialty Materials Businesses for Globally Expanding Operations

### Strategy by Business Segment

#### Elastomer Materials Business

Further strengthen competitive businesses by responding globally to growth markets

#### Specialty Materials Business

Expand operations by accelerating R&D in three key fields



## Strategy by Business Segment

### Elastomer Materials Business

Further strengthen competitive businesses by responding globally to growth markets

### Specialty Materials Business

Expand operations by accelerating R&D in three key fields

## Singapore Plant begins operations, switch to local products in progress



S-SBR Singapore Plant

S-SBR (Solution-polymerized Styrene-Butadiene Rubber)



Main application for S-SBR:  
Fuel efficient tires

**Singapore Plant**  
**Decision to Build Second Line**  
→ To be completed in January 2016  
Commercial production to begin in April 2016

**Singapore Plant**  
Mass production of four core products  
Transfer production from the Tokuyama Plant

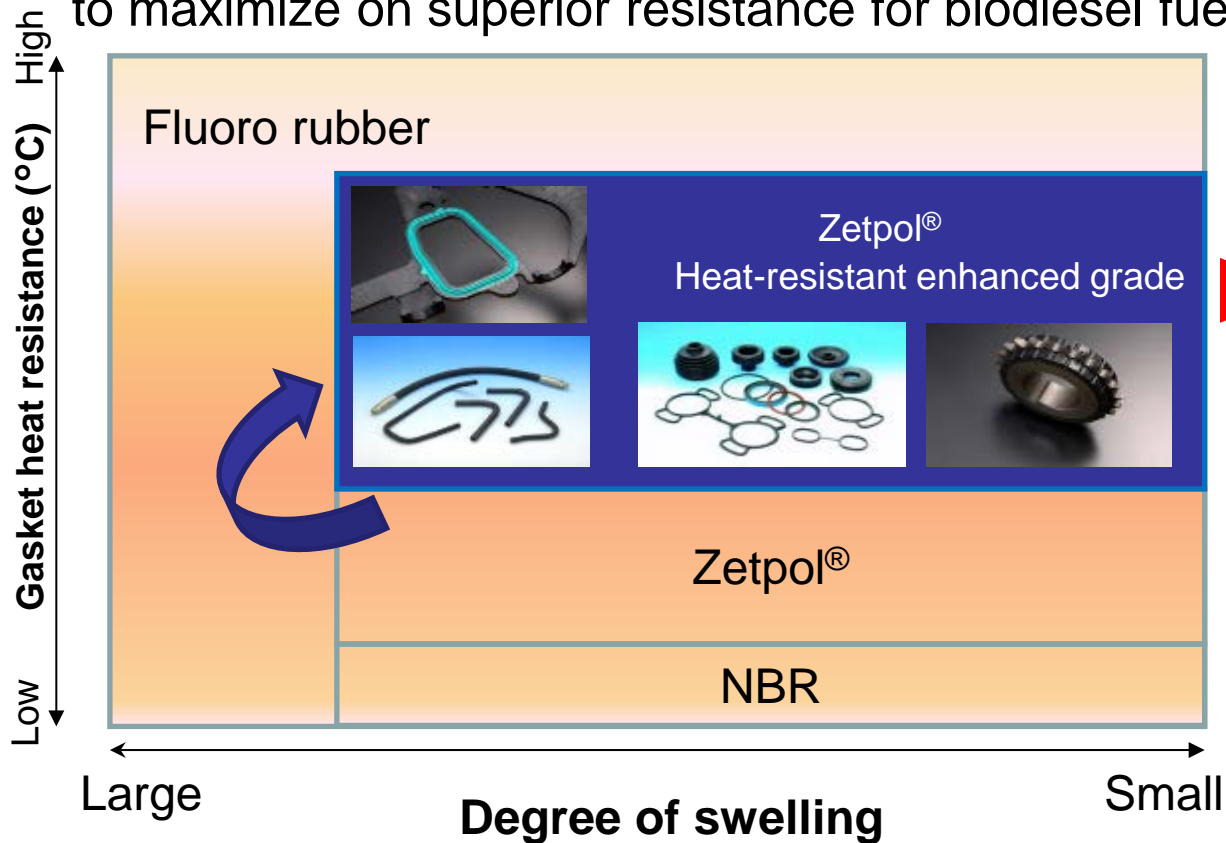
**Tokuyama Plant**  
Mass production of special grade products  
Test production of new products → Launch → Mass production (pilot plant)

**Laboratory**  
Development of new products

Full-scale shipments to major users

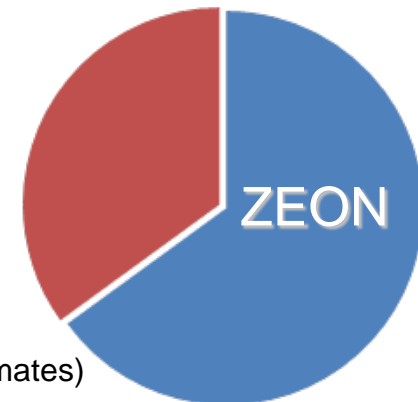
## Meeting the need for highly functional automotive components

Start of application in seals and gaskets around lubricants to maximize on superior resistance for biodiesel fuels



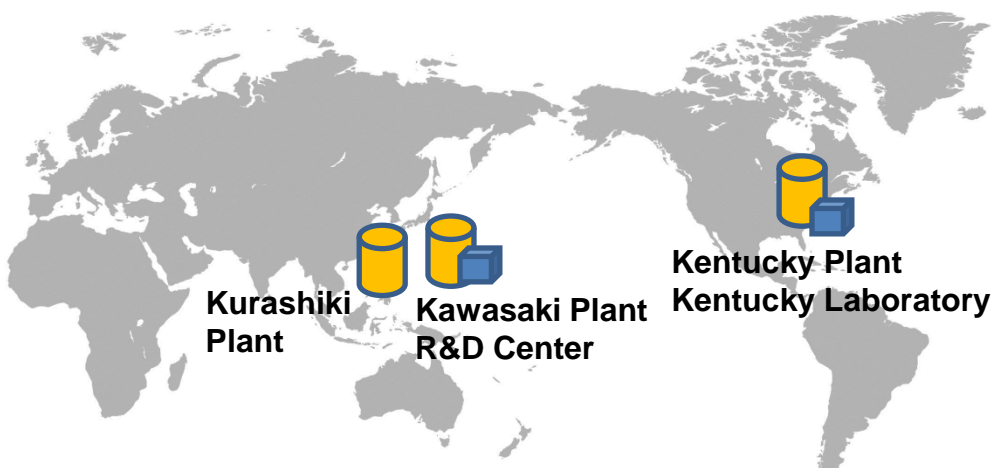
Commercial production at the Kawasaki Plant's new facility

HNBR Market Share



(Source: ZEON estimates)

Seeking to differentiate ourselves by launching unique new products into the expanding acrylic rubber market

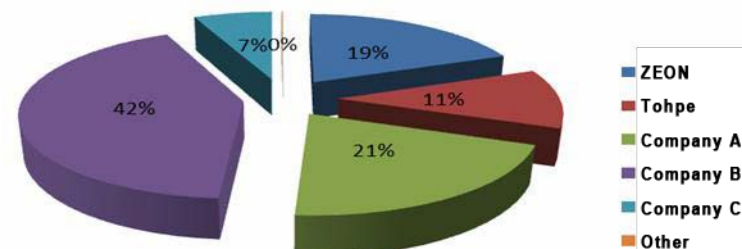


Established global production and an R&D system.  
Verification of concepts for innovative new products currently underway in the market.

- Super heat-resistant grade
- Secondary vulcanization-free grade
- Vulcanization speed-adjusted grade

## Global Share of Acrylic Rubber

**ZEON Group share: 30%**



## Expanding Acrylic Rubber Market

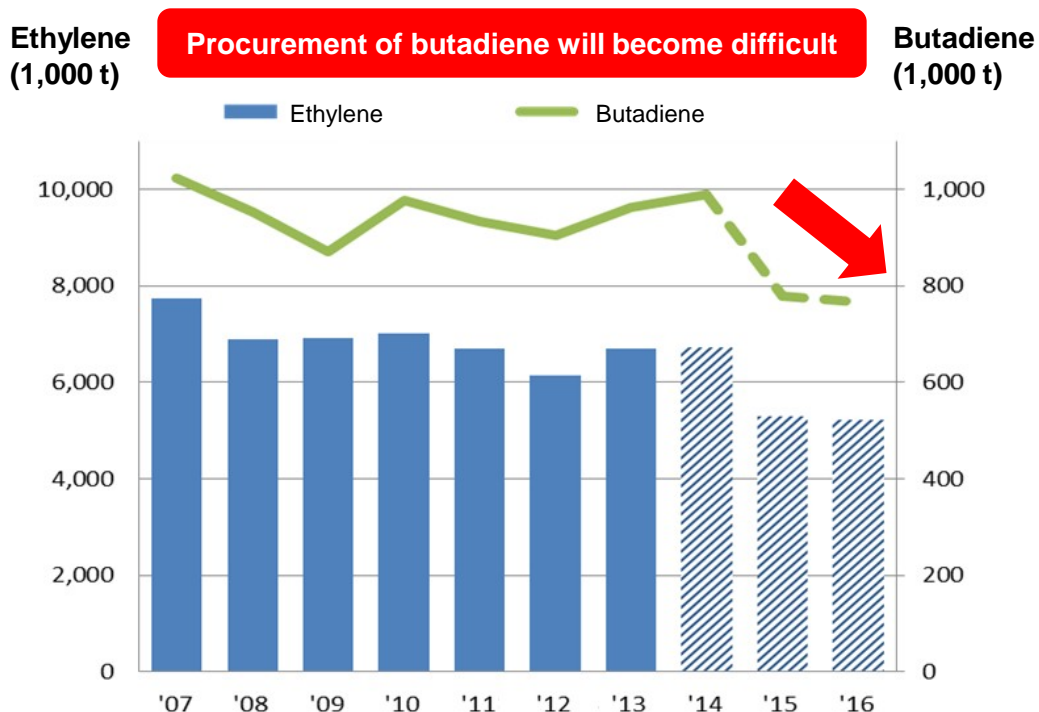
Trend for fuel efficiency leads to increase in vehicles equipped with a turbo system

**Greater use of heat-resistant, acrylic rubber hose**

Differentiate ourselves by developing and launching new products into the market

Continuously building an optimal production system while responding to a changing material procurement environment

## Production of ethylene and butadiene in Japan

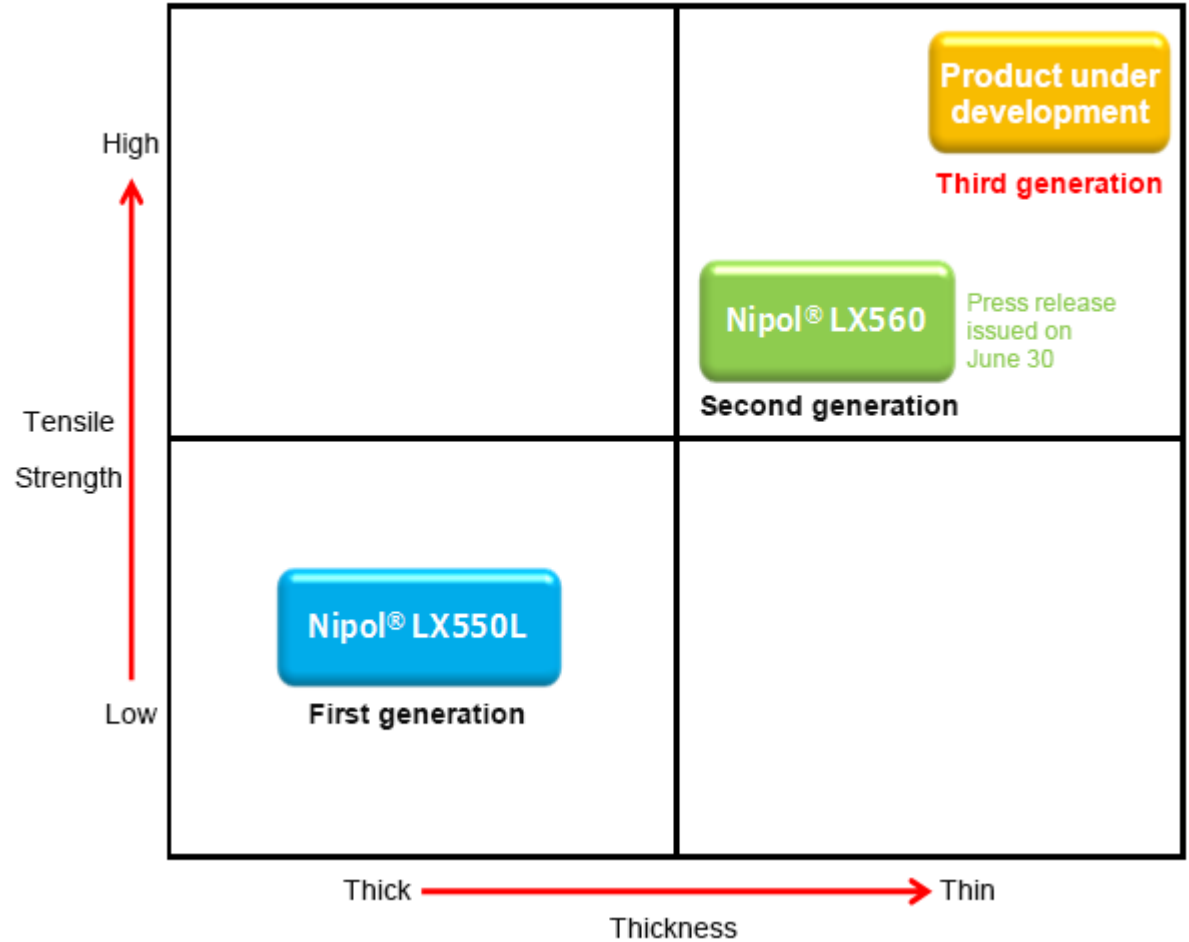


ZEON estimates for 2014 and beyond  
(Source: Ministry of Economy, Trade and Industry statistics)

## ZEON's production capacity for synthetic rubber (t/year)

	Japan	United States	Others
E-SBR	80,000		
S-SBR	55,000		35,000
BR	65,000		
NBR	60,000	15,000	15,000
HNBR	4,500	5,000	
IR	40,000		
ACM	8,500	8,500	
Others		10,000	

## Development of NBR Latex for next-generation high-strength thin film gloves



Product under development is capable of meeting U.S./European requirements for tensile strength (6N and above) even when applied to gloves with 0.050 mm thickness.

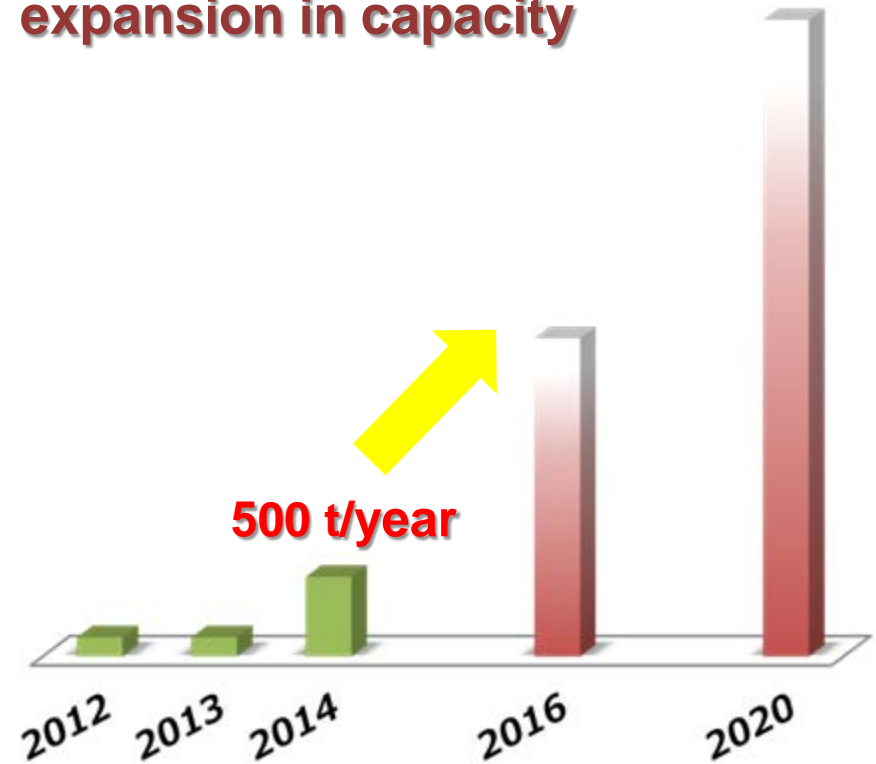
## Expand business for surgical glove material (E-IR)



Advantage of E-IR: Solution for allergy to protein contained in

- Expanding sales centered on surgical gloves
- Considering further expansion in production capacity for 2020 with an eye on the market environment

Began considering next expansion in capacity





## Developing ZEON's unique isoprene extraction technology for overseas businesses



### Making maximum use of C5 fractions

Isoprene

SIS Block Copolymers (thermoplastic elastomers)

Piperylene

Hydrocarbon resin (tackifier, binder)

Applications

Elastic film

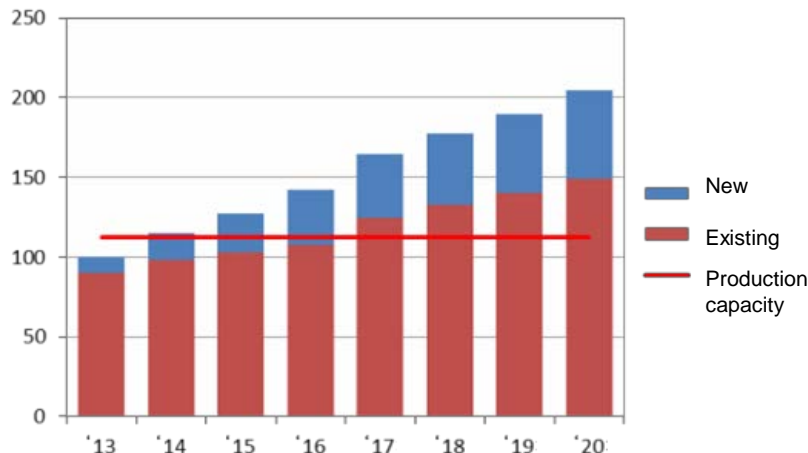
Adhesive tape

Traffic paint



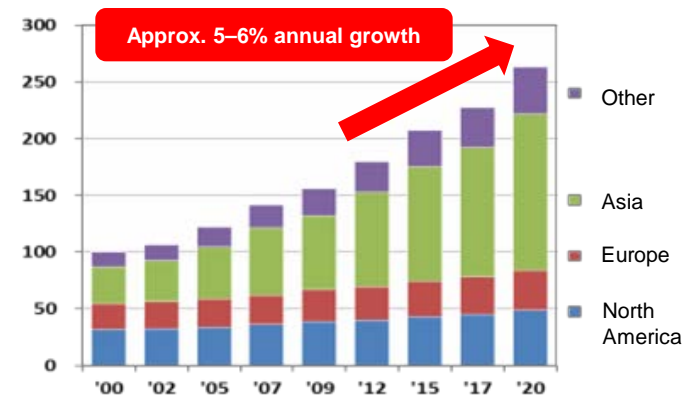
### ZEON's SIS sales plan and production capacity

Index based on a scale where FY2013 sales volume is 100



### Global market for adhesive tape

Index based on a scale where FY2000 is 100

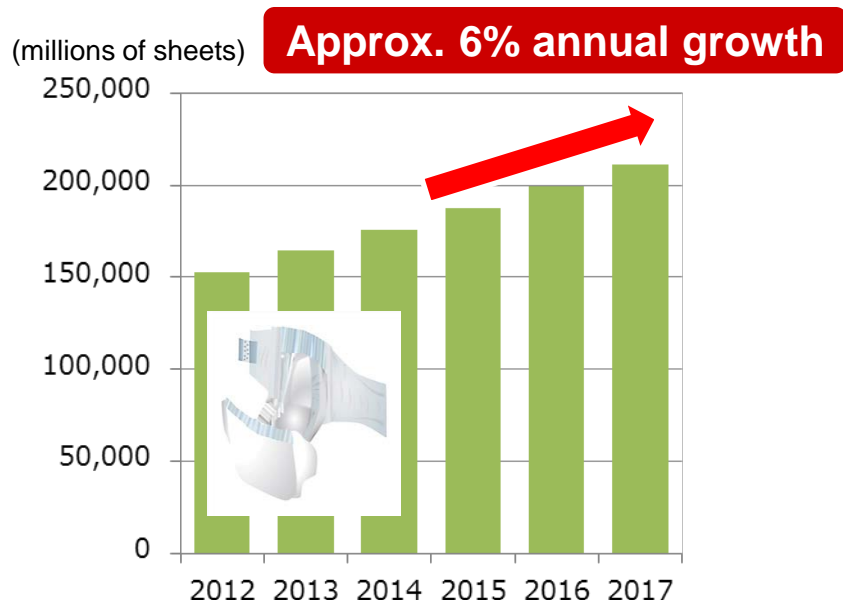


(Source: ZEON estimates based on data provided by The Freedonia Group)



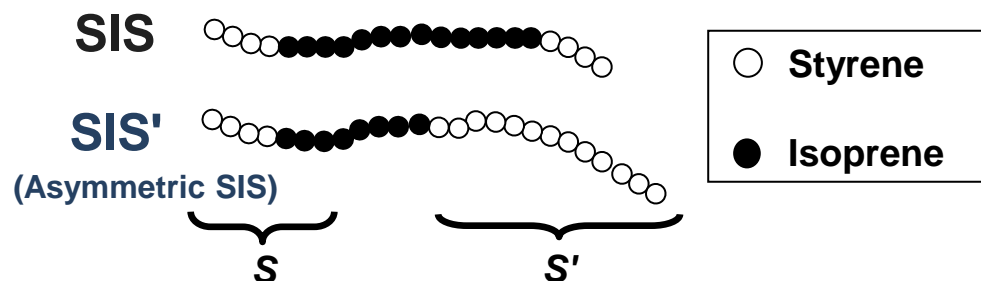
## Increasing new applications for asymmetric SIS

### Global market for paper diapers



(Source: ZEON estimates)

### Structure of Asymmetric SIS



Technology capable of controlling structures with unique morphology

### Characteristics (of elastic film applications)

Well-balanced rebound and recovery properties



Thinning

Achieved low-temperature viscosity



Low odor

Mixes well with other materials



No need for front end

(Source: ZEON estimates based on data provided by The Freedonia Group)

## Strategy by Business Segment

### Elastomer Materials Business

Further strengthen competitive businesses by responding globally to growth markets

### Specialty Materials Business

Expand operations by accelerating R&D in three key fields

Realizing an Advanced  
Information Society

Saving, Storing and  
Creating Energy

Enhancing QOL  
(Quality of Life)

## Three Key Specialty Material Fields

**IT components**  
Optical, packaging,  
electronic applications

**Energy  
components**

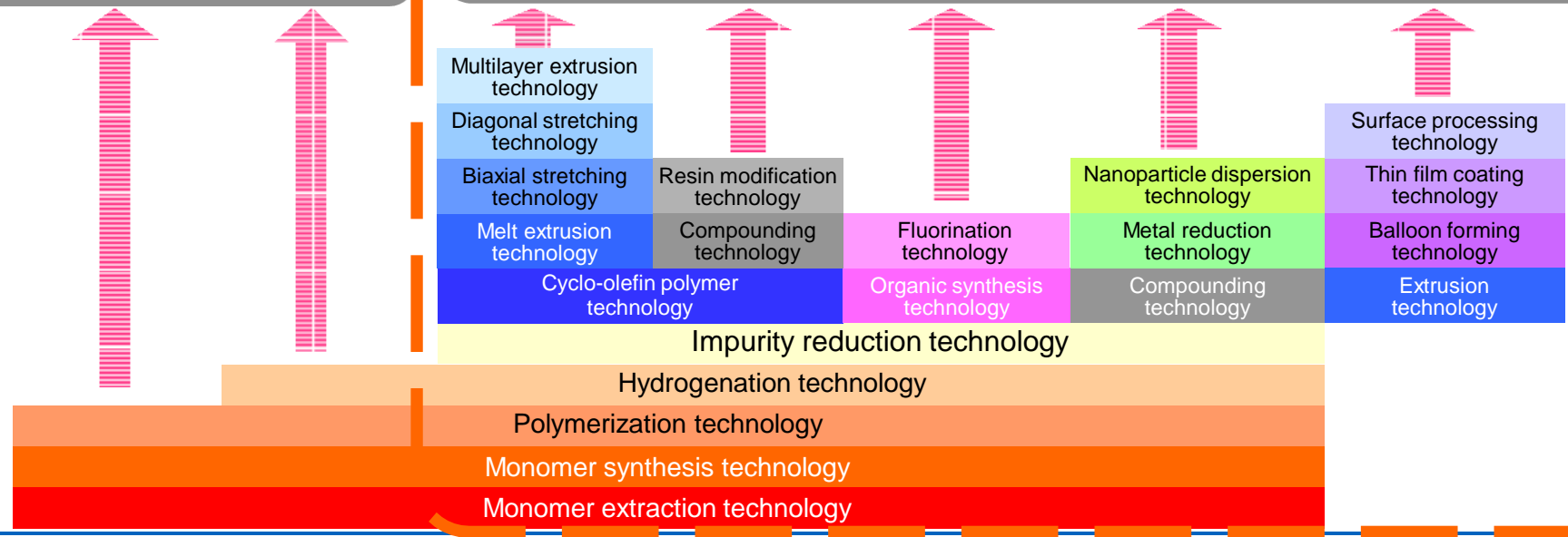
**Medical devices**

### Elastomer Materials Business

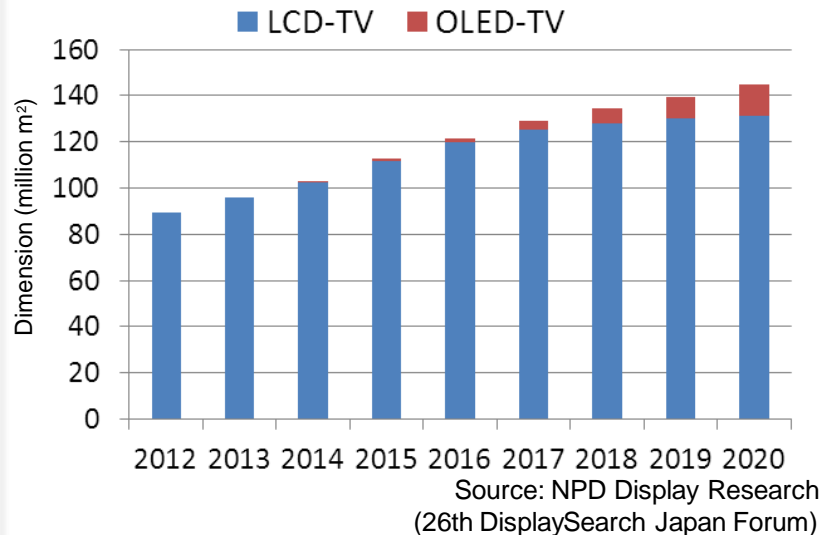
S-SBR	H-NBR
NBR	Direct hydrogenation NBR
ACM	
SIS	
E-IR	
Polymerized toner	

### Three Key Specialty Material Fields

IT Components			Energy Components	Medical Devices
Films for IPS	Coatable insulator for organic EL	Low-K material	LiB binder for automobiles	IABP balloon driving apparatus
Retardation film for VA	Materials for organic EL	Etching gas	LiB binder	Pressure sensor IABP
Films for organic EL			Slurry for heat-resistant separator	Bipolar rotating hemostatic forceps
			Binder for heat-resistant separator	Deflectable sheath for EP
Resin for optical applications / Resin for medical applications			Seal materials	ERCP device

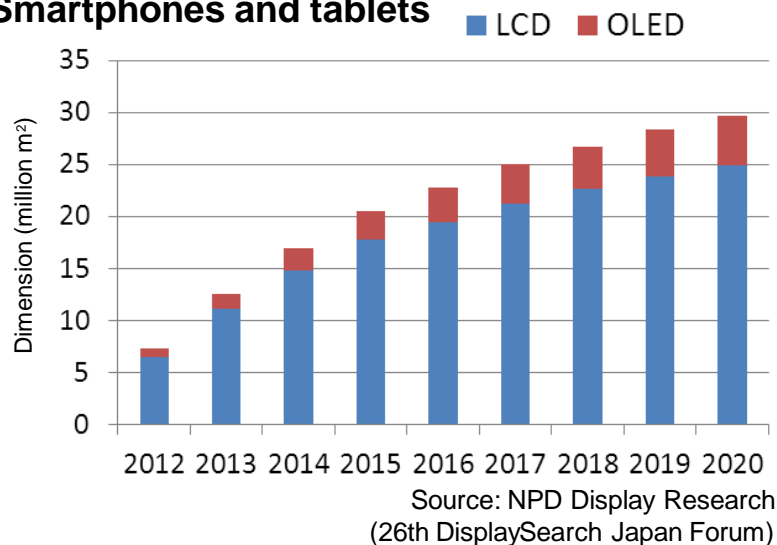


## TV Market



## Small- to Mid-sized FPD Market

### Smartphones and tablets



## Features

- Larger screens  
→ Larger dimensions required every year in TV market
- Trade in open cell (half-finished) products



## Maximizes advantages of ZEONOR® Film

- Low water absorbency
- Heat resistance
- Dimensional stability

## 1. Topics: TV market

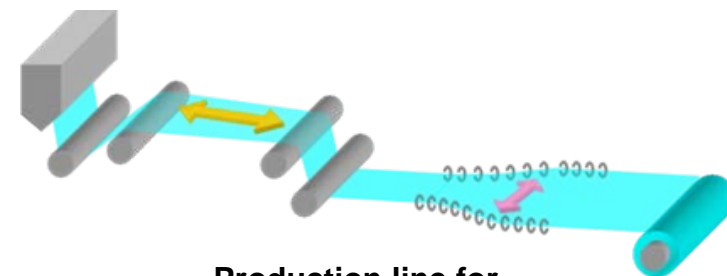
Front-loaded expansion of production capacity for retardation film for LCD TVs

Initial announcement: mass production to begin in Apr. 2015



Latest plan: Mass production to begin in Feb. 2015

Press release issued on Nov. 4



Production line for retardation film for LCD TV

## 2. Topics: Small- to mid-sized market



**Viewing angle compensation**

**View from an angle**

No compensation      With compensation

**Antireflection**

**External light**

Without antireflection      With antireflection

**No interference fringe**

PET film

ZEONOR® film

**Sunglass readability**

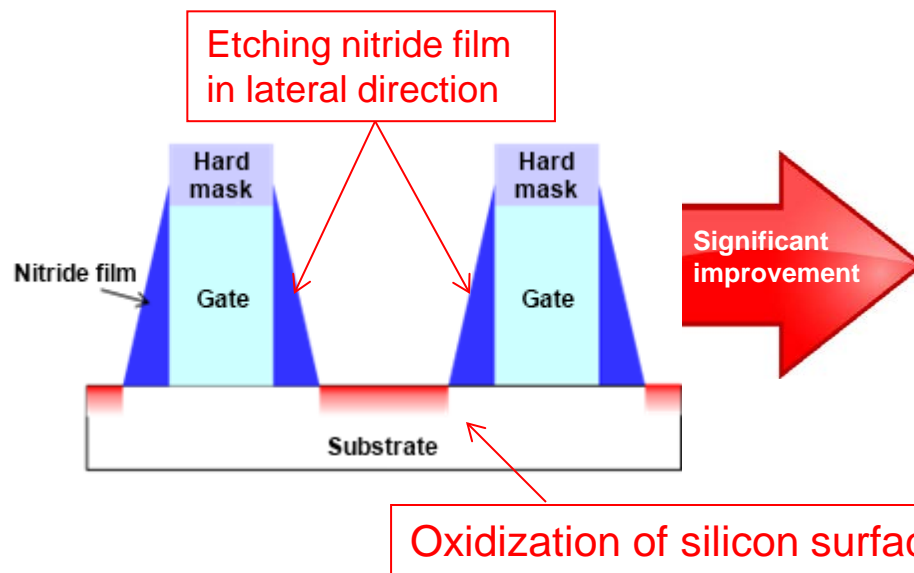
**Revolve**

Without sunglass readability      With sunglass readability

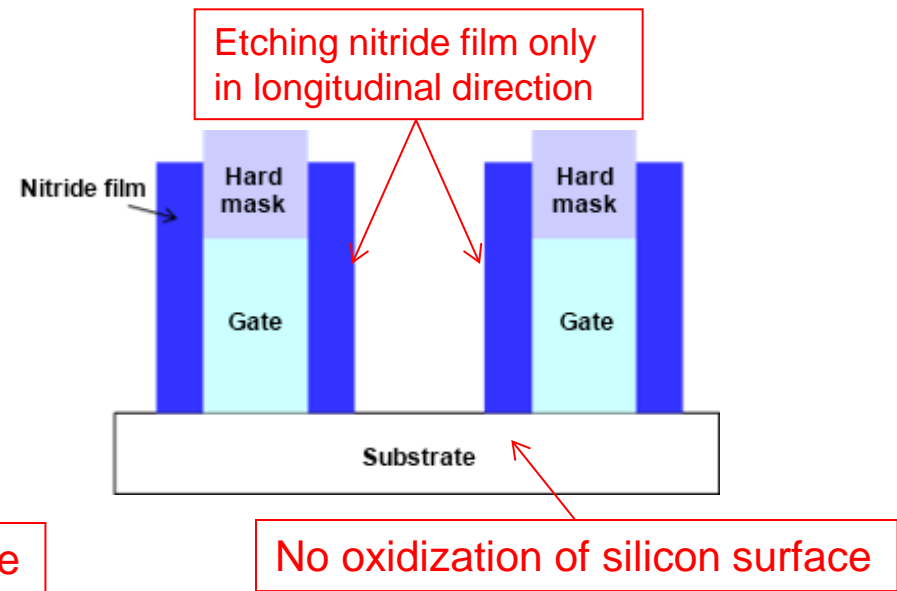
## Development of new etching gas for nitride film

- High selectivity for nitride film
- Target: 10 nm-generation Fin-FET\* devices
- Result of joint R&D with IBM

### Conventional Process (etching gas: CHF<sub>3</sub>)



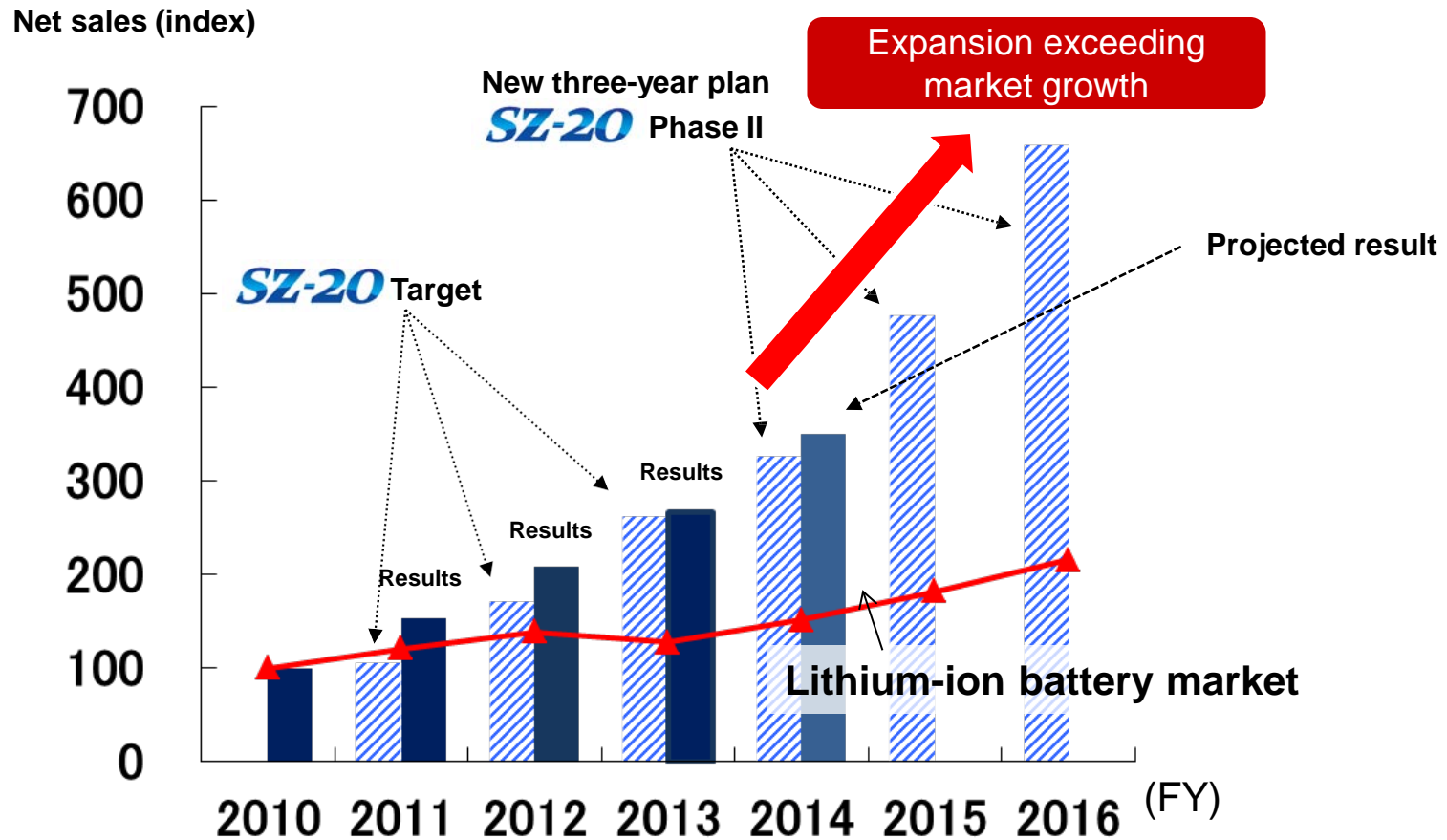
### New Gas Developed by ZEON



\* Fin-FET: Replacing the conventional flat gate structure with a three-dimensional structure makes it easier to control the gate voltage and thus prevent leakage current. This requires greater precision in the manufacturing process.

Steady business growth exceeding initial targets by expanding product lineup

## Sales of ZEON battery materials



Note:

The index is based on a scale where FY2010 is 100; market value is based on a report by three Japanese companies (November 2013).



## Contributing to restraining electrode swelling by applying the knowledge we have gained through our pioneering technology in the binder business

ZEON's Binder Technology—Binder for negative electrodes

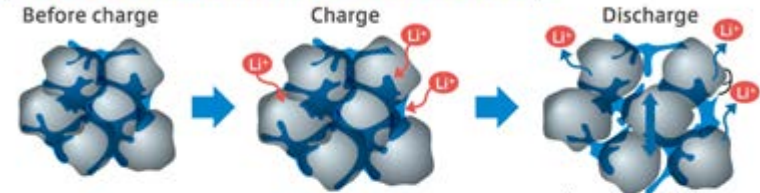
### Restraining electrode swelling

Resolves the challenge of greater battery capacity by restraining swelling in negative electrodes and contributes to enhancing cycling characteristics

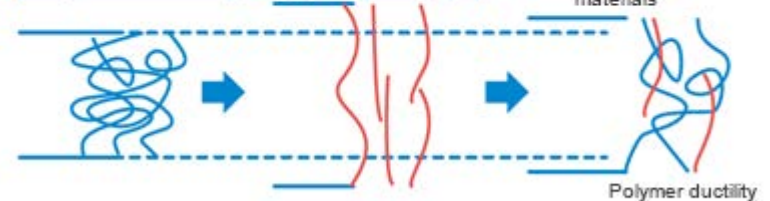


### Swelling and Contraction during Charge and Discharge

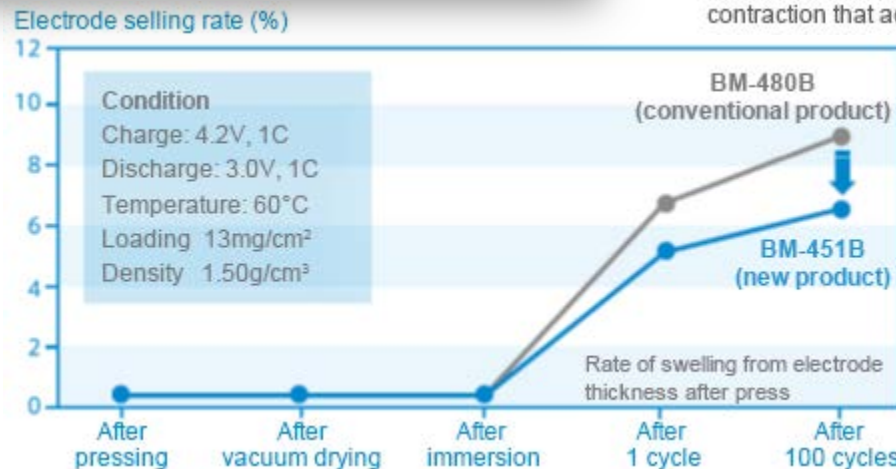
#### Charge and discharge model of negative electrodes



#### Polymer model during charge and discharge



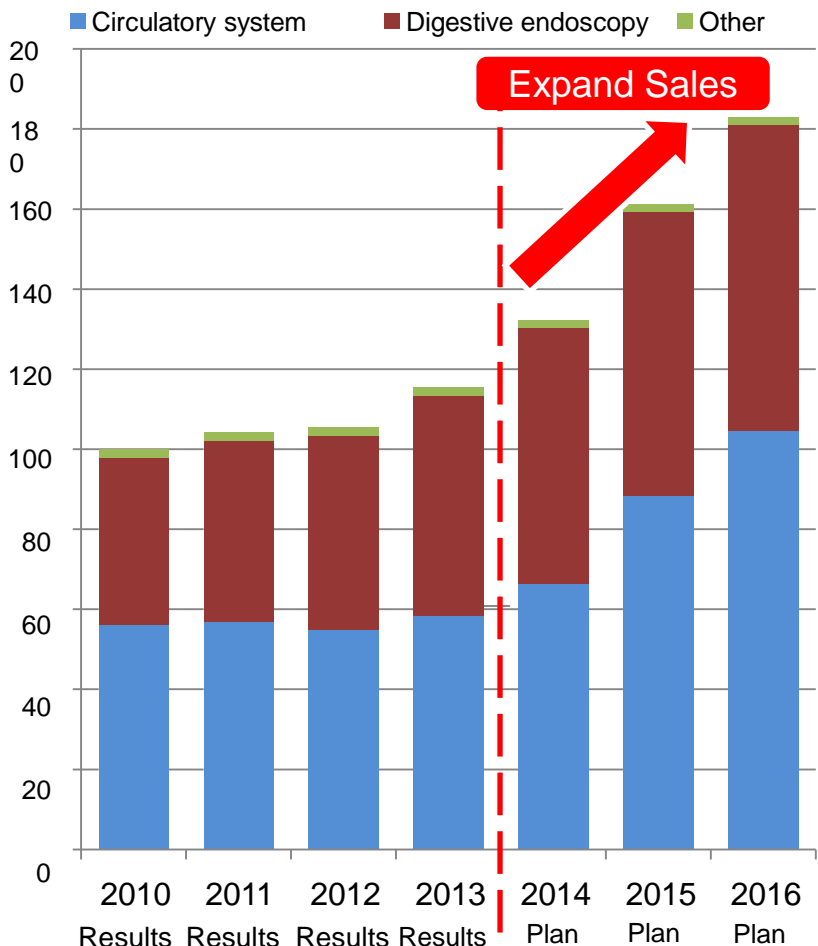
Polymers are thought to gain ductility from increased distance between active materials caused by the repeated swelling and contraction that accompanies charge and discharge.



← — — — — —  
**Optimizing polymer design to control polymer ductility**

## Sales of ZEON medical devices

Index based on scale where sales for FY2010 is 100

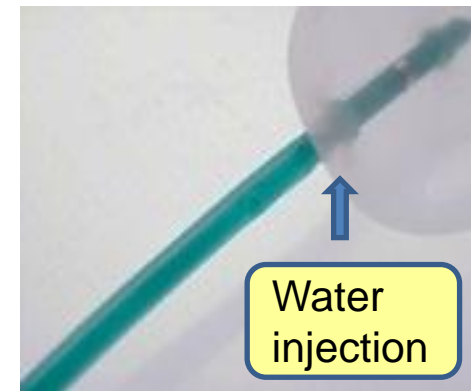
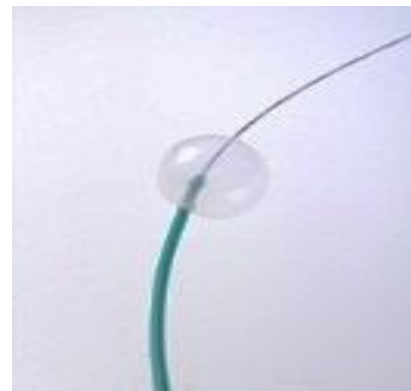


**SZ-20 Phase II**  
→ Plan

## Stone-flushing offset balloon catheter

Market launch: July 24, 2014, digestive endoscopy (ERCP)

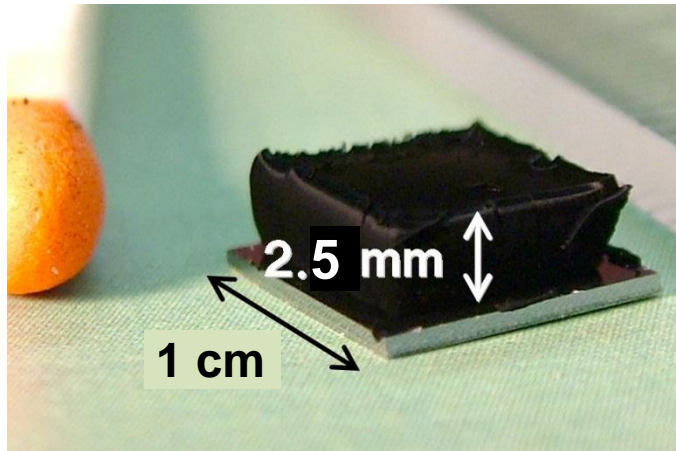
Press release issued on July 31



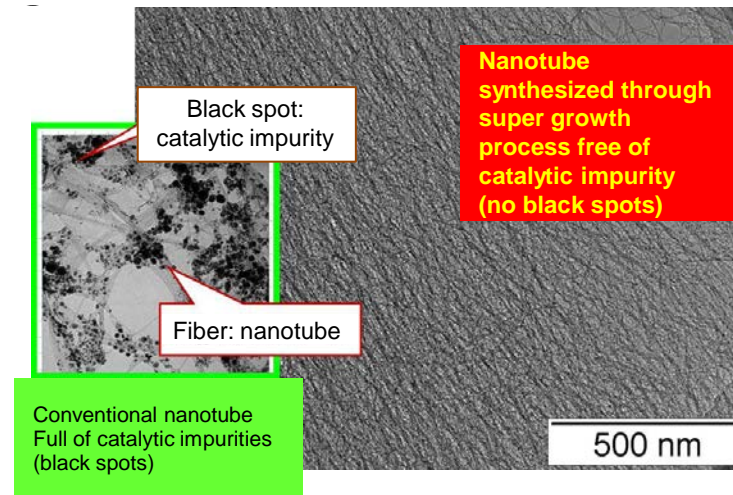
## CARBON NANOTUBE (CNT) UNDER DEVELOPMENT

Super Growth CNT developed by the National Institute of Advanced Industrial Science and Technology (AIST)

(1) Length: **Maximum length at millimeter scale**



(2) High purity: **Catalytic impurity less than 1%**



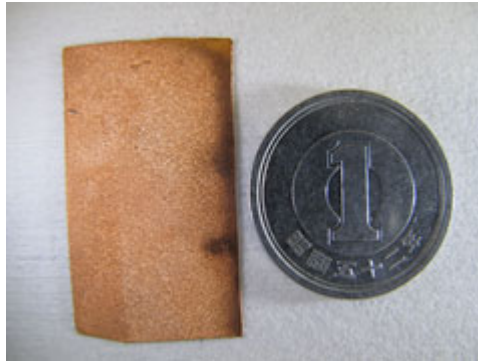
(3) Large surface area (specific surface area: larger than 800 m<sup>2</sup>/g)

**Largest carbon-based fiber substance**

## NUMEROUS DIFFERENTIATING CHARACTERISTICS

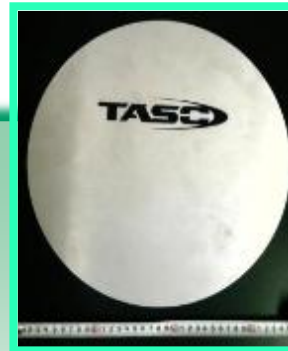
## CNT APPLICATIONS

Cu-CNT composite material



Electrical resistance comparable to copper with a current density that is 100 times greater

Al-CNT composite material



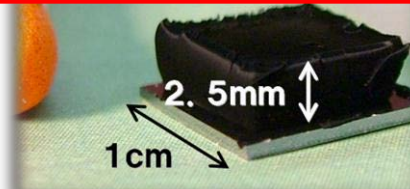
Four times greater thermal conductivity compared to aluminum

Rubber-CNT composite material



Soft and as thermally conductive as iron

Physical properties that challenge global conventions



Source: AIST  
Technology Research Association for Single Wall Carbon Nanotubes

Super Growth CNT developed by the National Institute of Advanced Industrial Science and Technology (AIST)



## CNT BUSINESS DEVELOPMENT

Sales / Revenue

Decision to build a mass production plant for single-walled carbon nanotubes  
→ To commence operations in second half of 2015

Press release issued on May 15

**Enterprise Blueprint for 2020**  
CNT business aims to contribute to consolidated net sales, targeting 500 billion yen

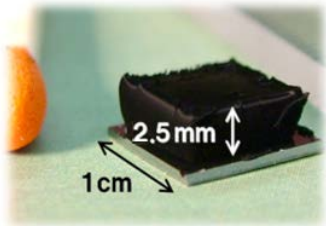


Create new business



Develop new technology

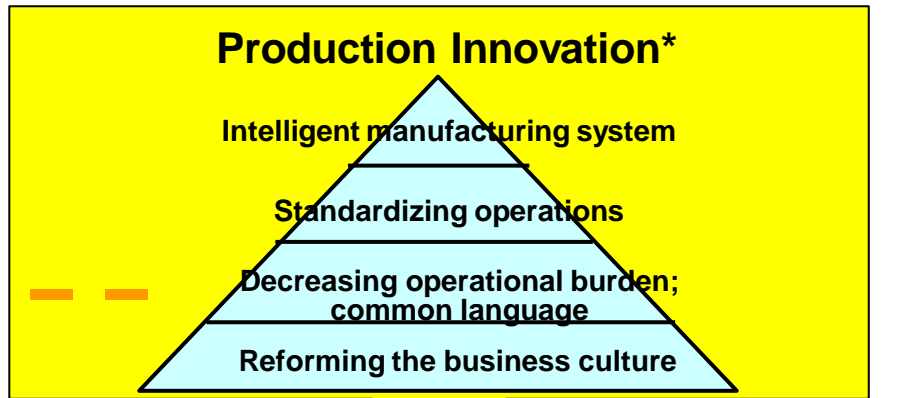
Strengthen new business



Integrate with existing businesses



Enhance functionality of rubber components

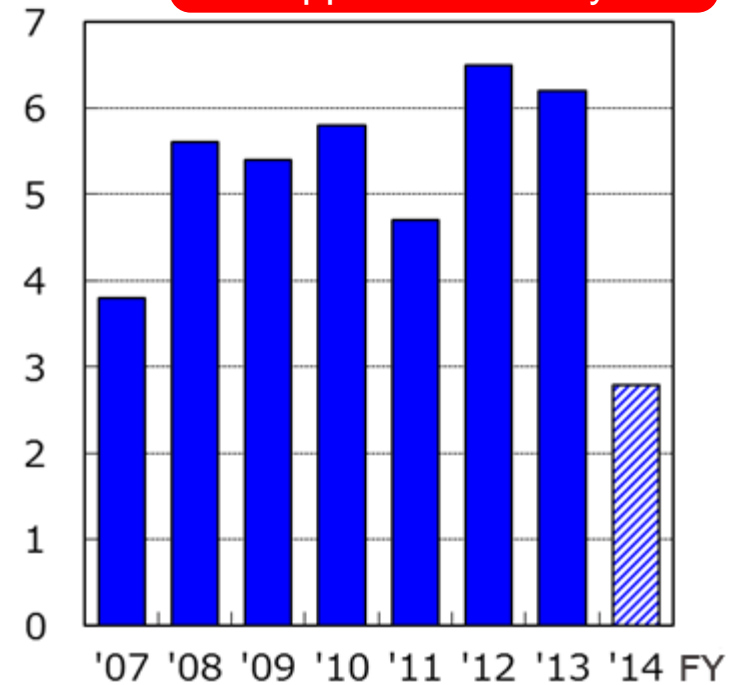


Continuing efforts for innovation and improvement

## ZΣ Activities – monetary effect

Annual cost reduction of approx. 6 billion yen

(billions of yen)



Approved themes

Strengthening ZEON's cost competitiveness

Top-down approach

Bottom-up approach

**ZΣ Activities**

- ★ Cost reduction theme
- ★ Circle theme (small group activities)
- ★ Raising cost awareness and education

\* Production Innovation: Daicel Production Innovation

## Enterprise Blueprint for 2020

Increase  
decision making  
speed

Raise operational  
efficiency

Nurturing a culture  
of change

Self-initiated thinking and action  
based on self-identity

Promoting the Torch  
Activities

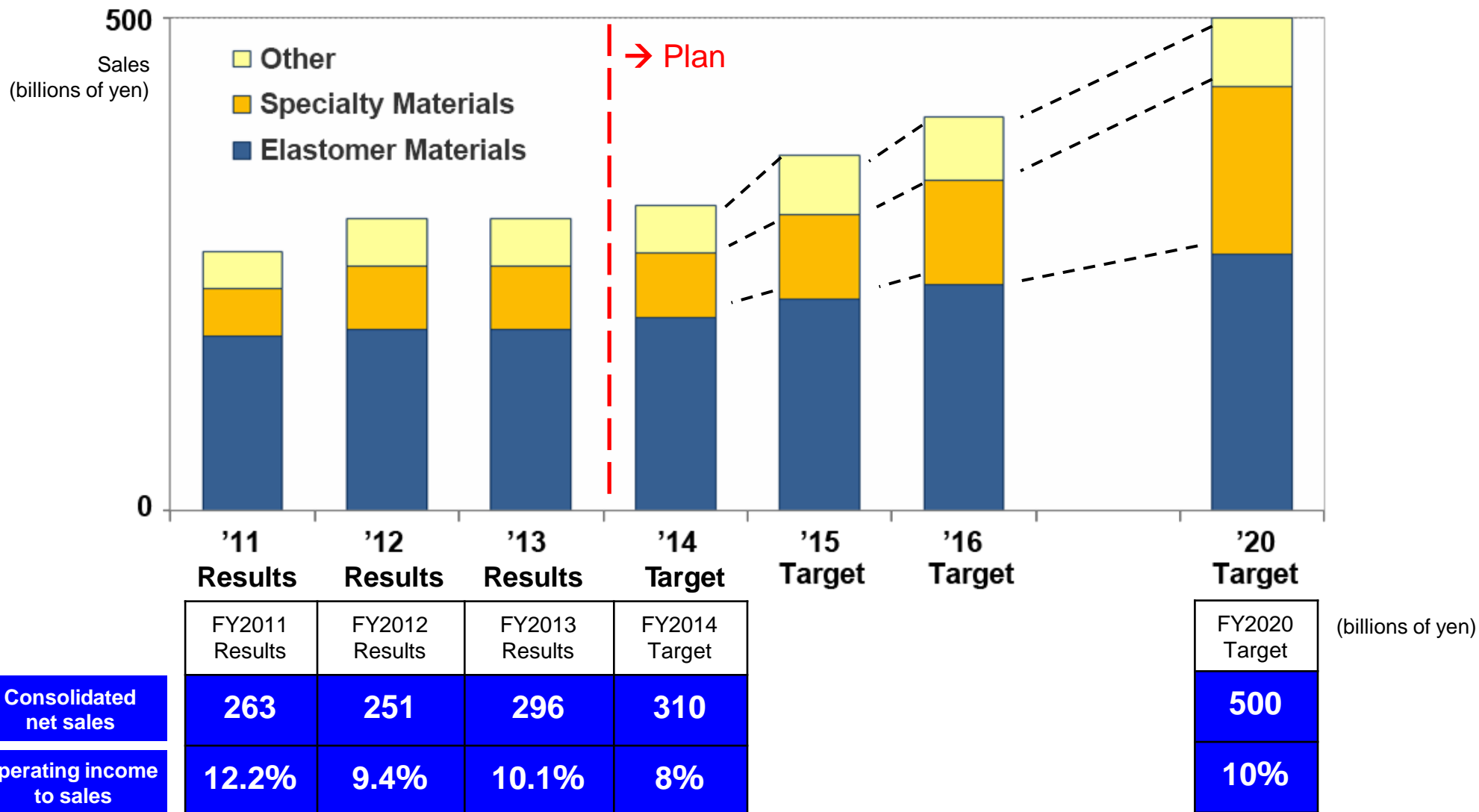
Zero industrial  
accidents

Self-management  
of health

Thorough commitment  
to safety and health

**Nurture a business culture based on “visualization” to  
achieve our Enterprise Blueprint for 2020**

## Targeting 500 billion yen in consolidated net sales in FY2020





**Speed**

**Dialogue**

**Social  
Contribution**

**ZEON's plans, forecasts, and other data appearing in this presentation were calculated based on information which was currently available and therefore includes risks and uncertainties. Actual results may differ depending on various factors.**



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