Six Months Ended September 30, 2017 (FY2017) Results Briefing

100年のHISTORY、200年のSTORY。

ANNIVERSARY

November 8, 2017

GS Yuasa Corporation

Contents

I. FY2017 First Half Financial Results

1. Net Sales/Profits

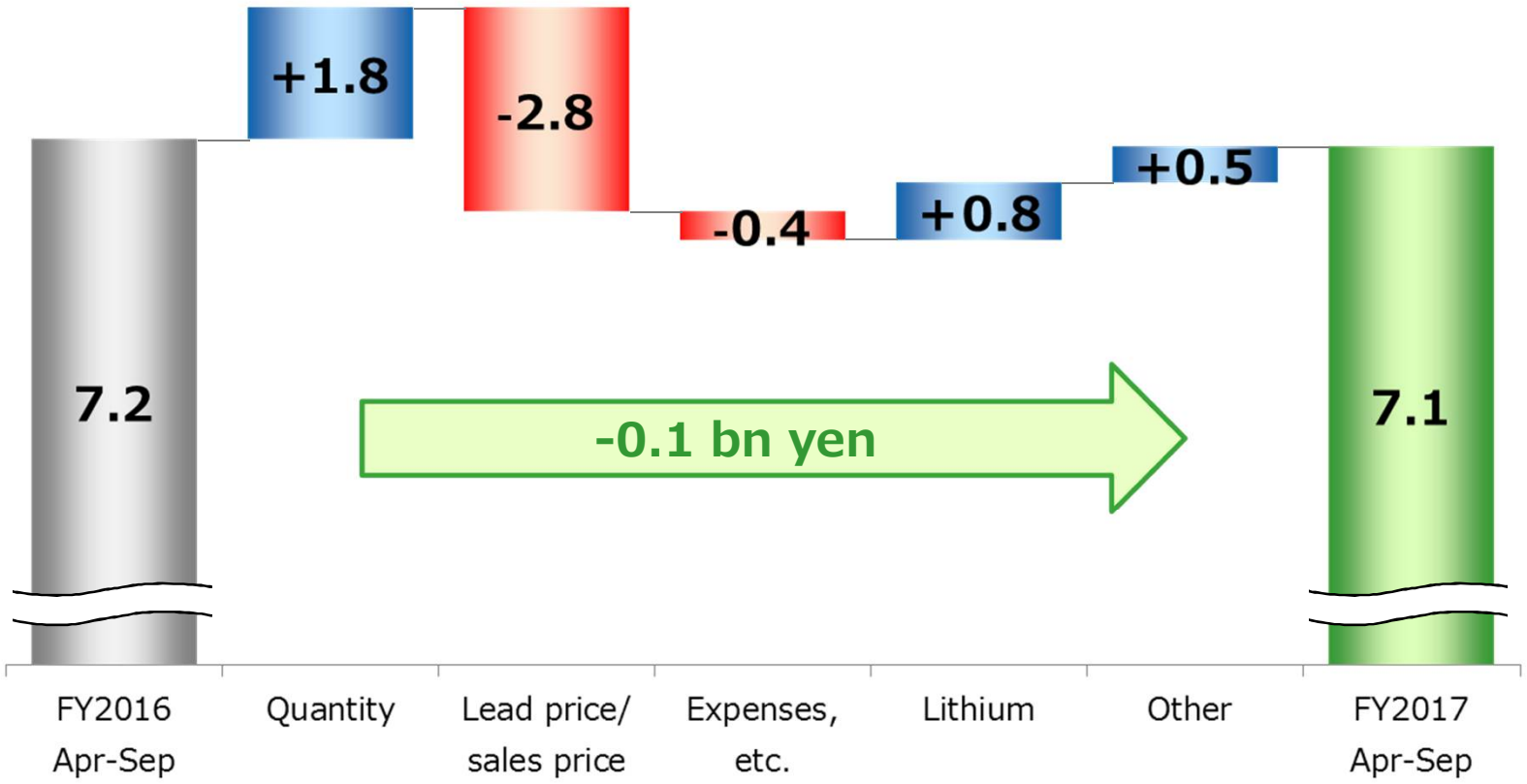
(Billion yen)

	FY2016 April-Sept	FY2017 April-Sept	Change	(YoY%)
Net Sales	158.9	184.2	+25.3	(+15.9%)
Operating income	7.2	6.0	-1.2	(-16.6%)
(Operating income ratio)	4.5%	3.2%	-1.3P	
Operating income before amortization of goodwill	-	7.1	-	
(Operating income ratio before amortization of goodwill)	-	3.8%	-	
Ordinary income	6.6	6.4	-0.2	(-3.0%)
Extraordinary income	0.1	0.1	+0.0	
Extraordinary loss	0.5	0.1	-0.4	
Profit before income taxes	6.2	6.5	+0.3	
Income taxes	1.1	2.6	+1.5	
Profit attributable to non-controlling interests	1.0	1.3	+0.3	
Profit attributable to owners of parent	4.1	2.5	-1.6	(-38.0%)
(Net profit ratio)	2.6%	1.4%	-1.2P	
Profit attributable to owners of parent before amortization of goodwill	-	3.7	-	
(Net profit ratio before amortization of goodwill)	-	2.0%	-	
Interim dividend (yen/share)	3 yen	3 yen	±0	

1. Net Sales/Profits

Factors for Operating Income Change

(Billion yen)



Note: Operating income in FY2017 1H is operating income before amortization of goodwill.

2. Segment Results

(Billion yen)

		FY2016 Apr-Sep		FY2017 Apr-Sep		Change	
		Net sales	Operating income (Op. income ratio: %)	Net sales	Operating income (Op. income ratio: %)	Net sales	Operating income (Op. income ratio:P)
Automotive battery	Japan	22.2	1.1 (5.1)	39.3	2.0 (5.2)	+17.1	+0.9 (+0.1)
	Overseas	83.1	5.3 (6.4)	88.7	4.1 (4.6)	+5.6	-1.2 (-1.8)
Industrial battery and power supply		30.8	1.6 (5.2)	29.5	0.8 (2.8)	-1.3	-0.8 (-2.4)
Automotive lithium-ion battery		18.5	-0.5 (-2.9)	19.6	0.2 (1.1)	+1.1	+0.7 (+4.0)
Others		4.2	-0.3 (-7.5)	7.1	-0.1 (-1.3)	+2.9	+0.2 (+6.2)
Total		158.9	7.2 (4.5)	184.2	7.1 (3.8)	+25.3	-0.1 (-0.7)

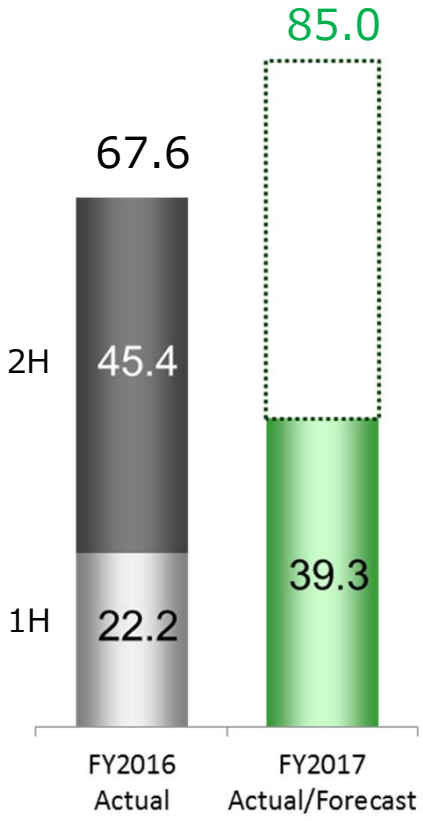
Note: Operating income is operating income before amortization of goodwill and operating income ratio is operating income ratio before amortization of goodwill.

2. Segment Results

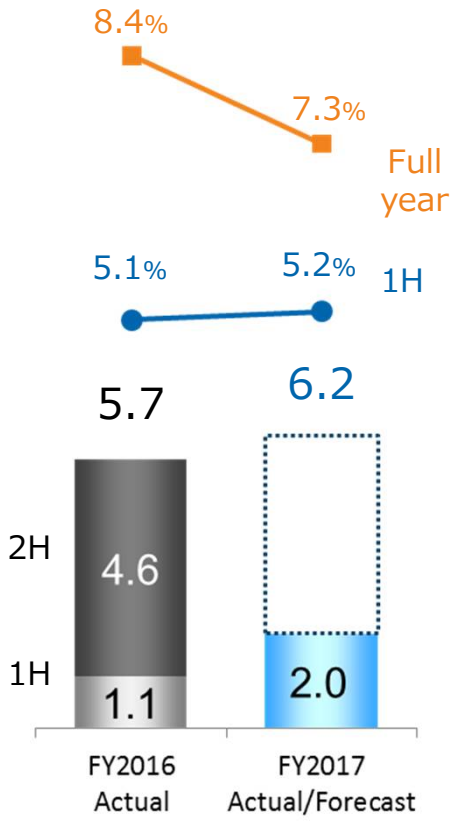
Automotive Battery (Japan)

(Billion yen)

Net sales



Operating income/ operating income ratio



FY2017 1H Sales Overview

- In addition to the increase in automobile production volume, sales for new vehicles increased reflecting strong sales of EN Standard compliant lead-acid storage batteries
- Sales of lead-acid batteries for start & stop vehicles (S&S) increased for both new vehicles and replacement
- Made the lead-acid battery business of Panasonic Corporation into a consolidated subsidiary in FY2016 3Q

Main Profit Change Factors

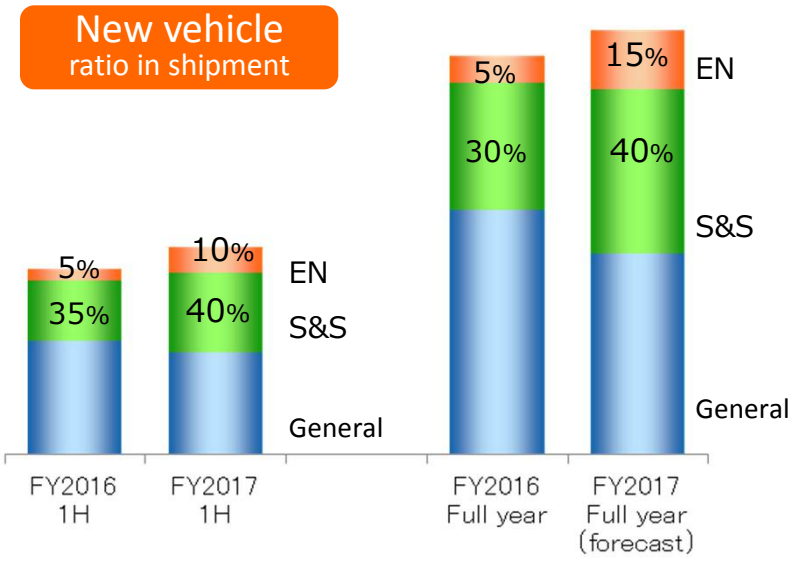
Quantity	+0.6
Lead prices / sales prices	-0.5
Streamlining, etc.	+0.8

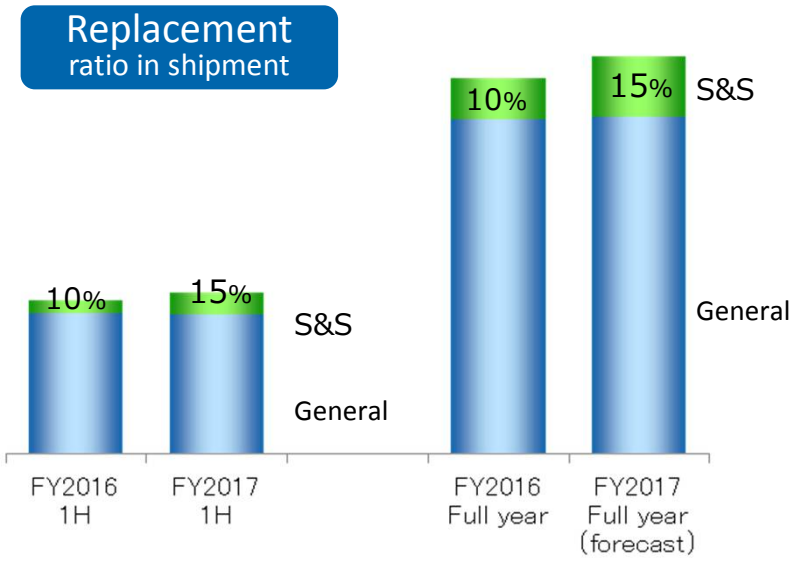
Note: Operating income is operating income before amortization of goodwill and operating income ratio is operating income ratio before amortization of goodwill.

2. Segment Results

Automotive Battery (Japan)

Demand change due to evolution of automobile and response





Battery evolves along with evolution of automobile

Improve new vehicle adoption rate with development and technological capabilities

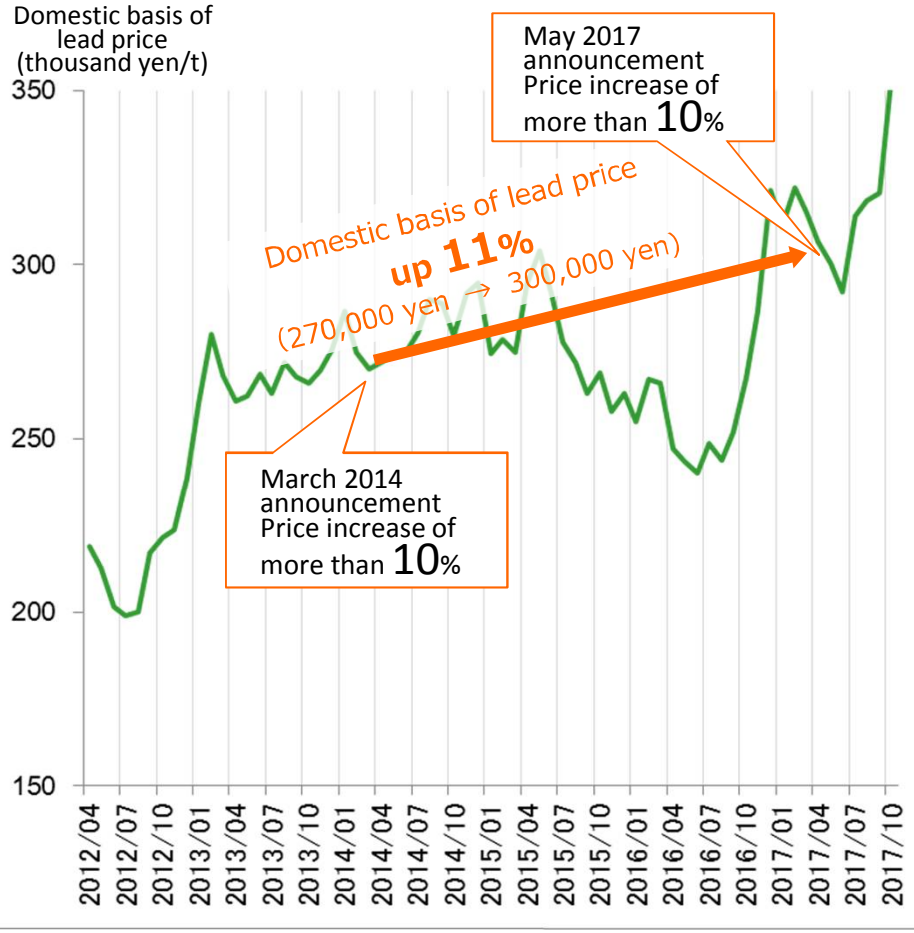
Distribution channels change along with evolution of automobile

Strengthen sales force through reorganization
Enclose customers utilizing Internet member services

2. Segment Results

Automotive Battery (Japan)

Response to price rise of main raw materials



New vehicles

Contracts to adjust selling price corresponding to domestic basis of lead price (lead price sliding scale system)

Replacement

*Based on news releases

GS YUASA

With shipment from June 1, 2017,
up more than 10%

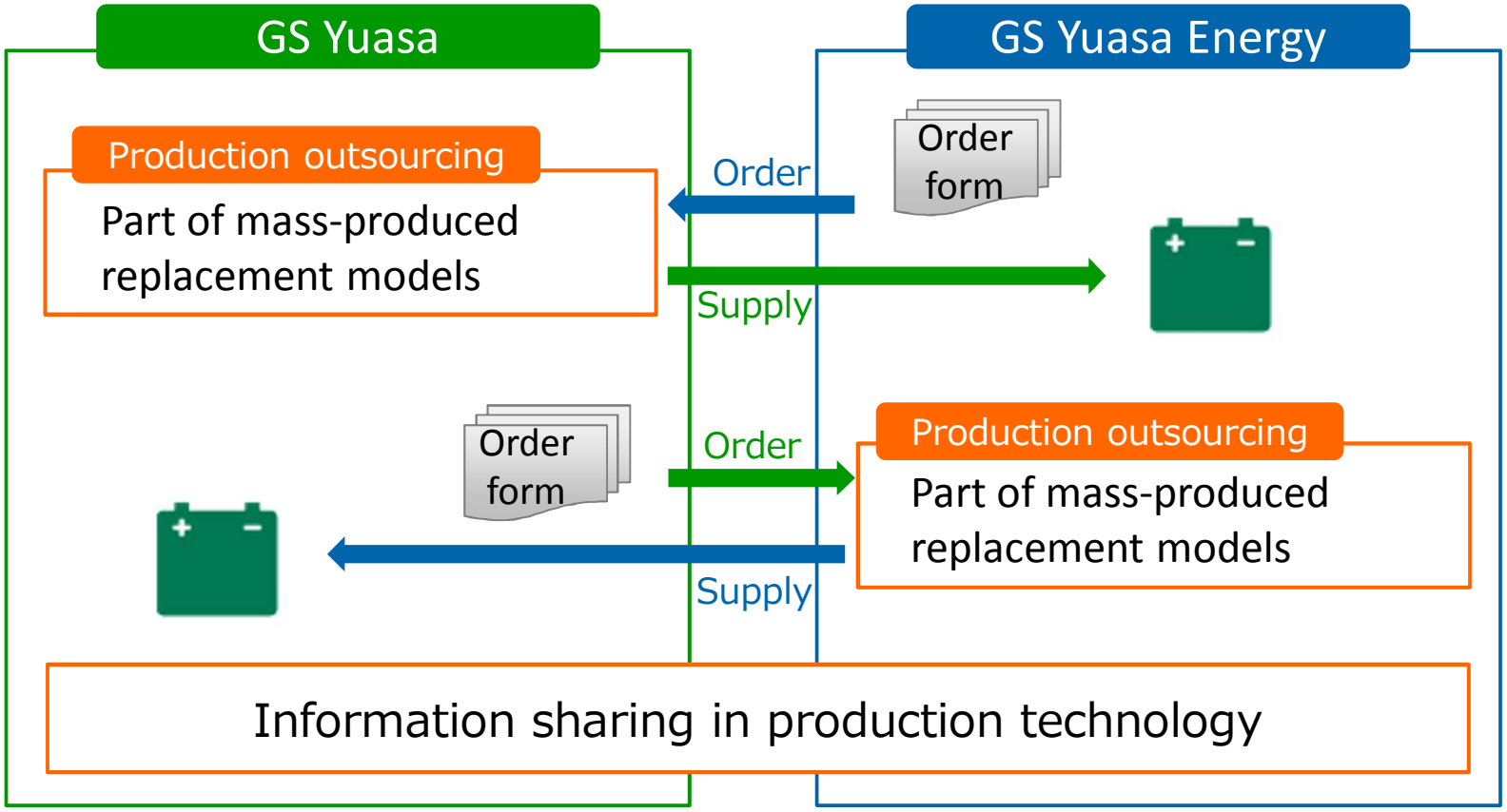
*Reference

Panasonic

With shipment from September 1, 2017,
up more than 10%
the existing price

Automotive Battery (Japan)

Synergy effects from integration of Panasonic's lead battery business

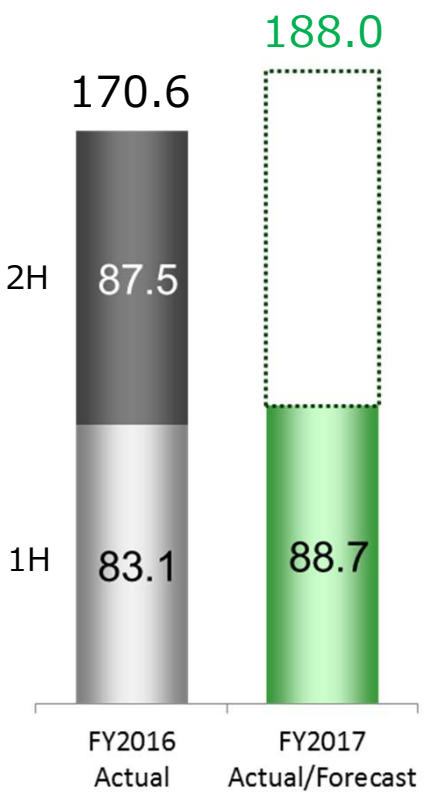


2. Segment Results

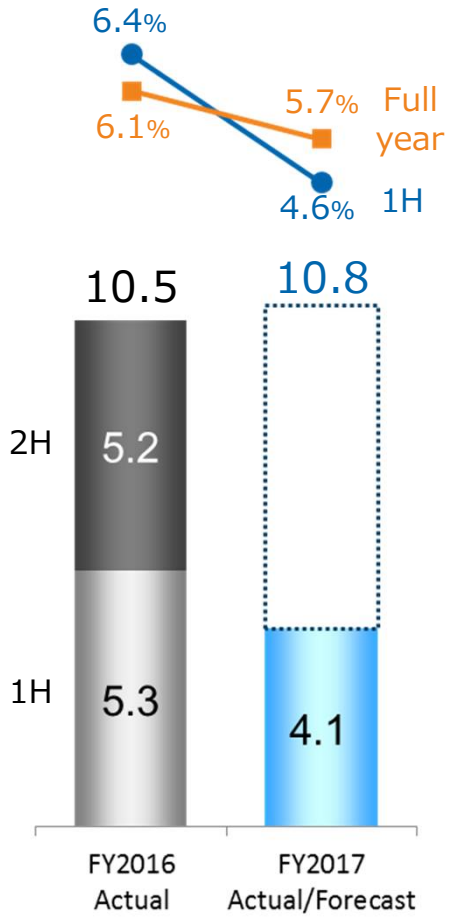
Automotive Battery (Overseas)

(Billion yen)

Net sales



Operating income/ operating income ratio



FY2017 1H Sales Overview

- In ASEAN, sales of automotive lead-acid storage batteries increased
- In Europe, sales of industrial-use lead-acid storage batteries increased
- Foreign exchange rate was stable

Main Profit Change Factors

Quantity	+1.3
Lead prices / sales prices	-1.4
Personnel costs / expenses, etc.	-1.3
Foreign exchange rage	+0.2

2. Segment Results

Automotive Battery (Overseas)

Response at key measure bases (consolidated subsidiaries)

China

Respond to expanding demand for high value added products (batteries for start & stop vehicles)

FY2017 Supply volume (full-year estimate) about **1.5** times YoY

Construction of new Tianjin plant is progressing in line with the plan (to start operations in 2018)

Existing plants Production capacity Max. 4 million units

New plant Production capacity Max. **8** million units

Enhancing capacity primarily of high value added products

Thailand

Enhance production capacity

Promoting capacity enhancement of maintenance-free batteries, whose demand is increasing

Indonesia

Strengthen technology and price competitiveness

Promoting streamlining of production by introducing facilities

Enhance export models for Europe

Working for introduction in FY2018

2. Segment Results

Automotive Battery (Overseas)

Response at key measure bases (equity-method affiliates)

Turkey

Enhance production capacity with construction of a new plant (start operation in 2018)

Existing plant	New plant
Production capacity	Production capacity
Max. 4 million units	Max. 2 million units

Enhancing capacity primarily of high value added products

Promote sales expansion strategies into uncultivated areas
(Middle East, Africa, CIS, East Europe)

Strengthen sales force by opening sales offices in UAE, Ukraine, Egypt

India

Enhance production capacity of motorcycle batteries

1st line	2nd line
Production capacity	Production capacity
Max. 1.2 million units	Max. 1.2 million units

Sales volume are increasing mainly to Japanese motorcycle manufacturers

Strengthen sales network for increasing sales of replacement batteries for automobiles and motorcycles

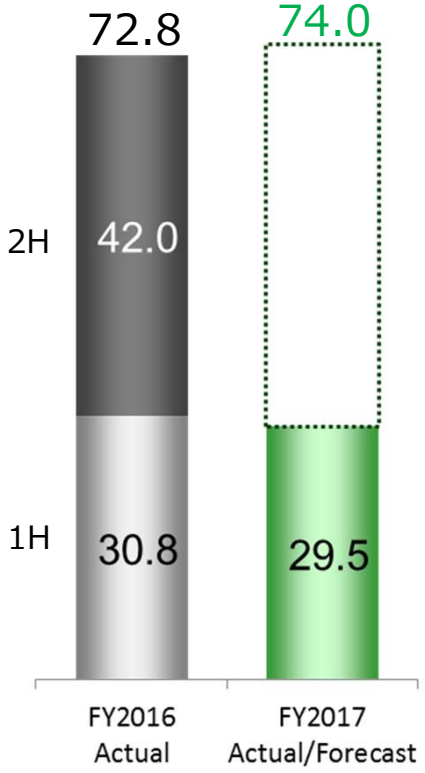
Number of distributors (target) About **1.5** times

2. Segment Results

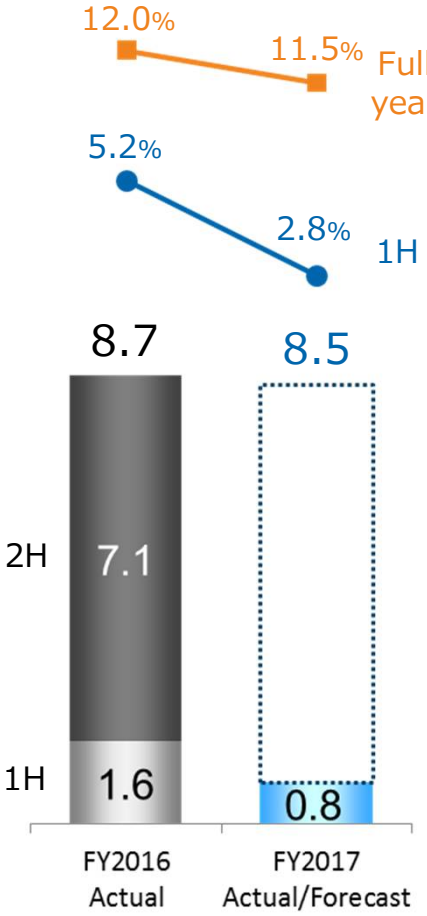
Industrial Battery and Power Supply

(Billion yen)

Net sale



Operating income/ operating income ratio



FY2017 1H Sales Overview

- Special demand for compact uninterruptable power supplies and industrial-use lithium-ion batteries was registered in FY2016 1H
- Sales of lead-acid batteries for battery-operated forklifts remained strong

Main Profit Change Factors

Quantity	-0.1
Lead prices / sales prices	-0.8
Expenses, etc.	+0.1

2. Segment Results

Industrial Battery and Power Supply

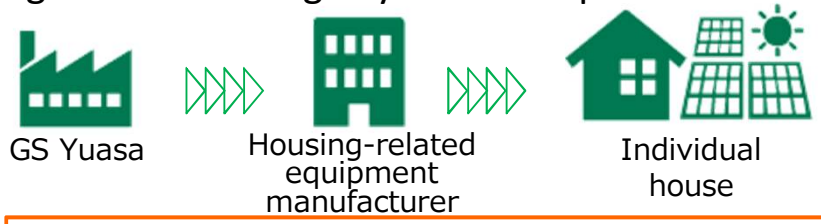
Enter the housing market in the power storage field

2009
The system to purchase redundant electricity from solar power generation began
(Purchase guarantee at ¥48/kWh for 10 years)
About 560,000 units (total) of photovoltaic power generation facilities were installed

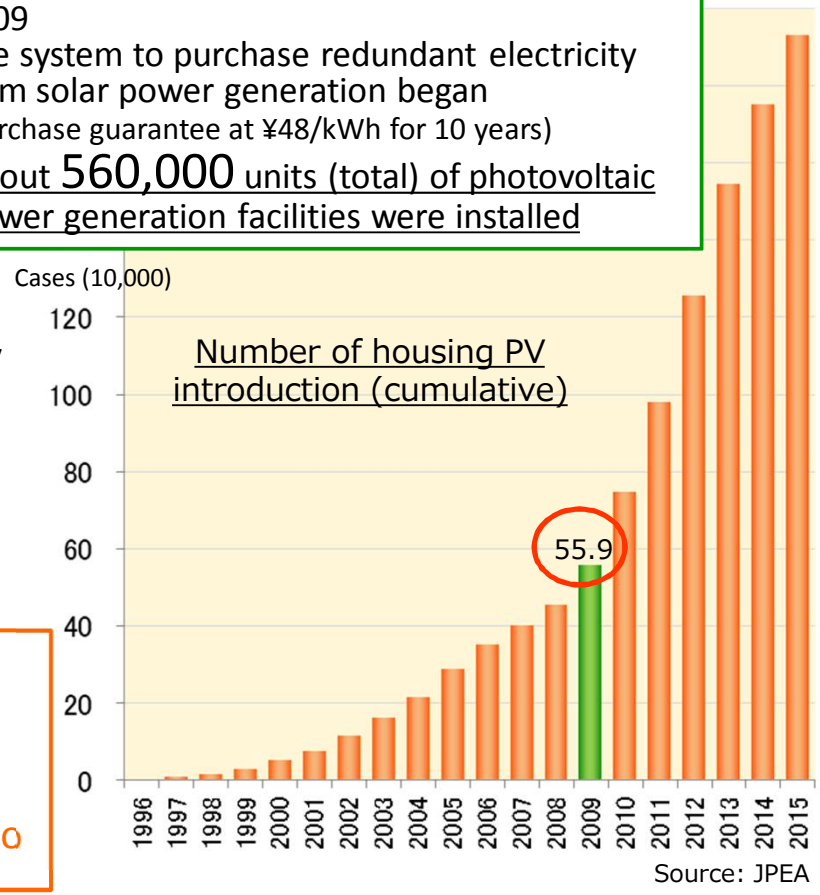
2019
The selling price of electricity to fall significantly as the 10 year purchase guarantee period ends

Shift to the era of own consumption from that of selling electricity

→ Power storage demand for storing electricity generated during day time to expand



Utilize mass-produced automotive lithium-ion batteries and sell home-use power storage system.
Multiple major housing-related equipment manufacturers have placed orders for or informed us of their unofficial decisions to adopt the product.



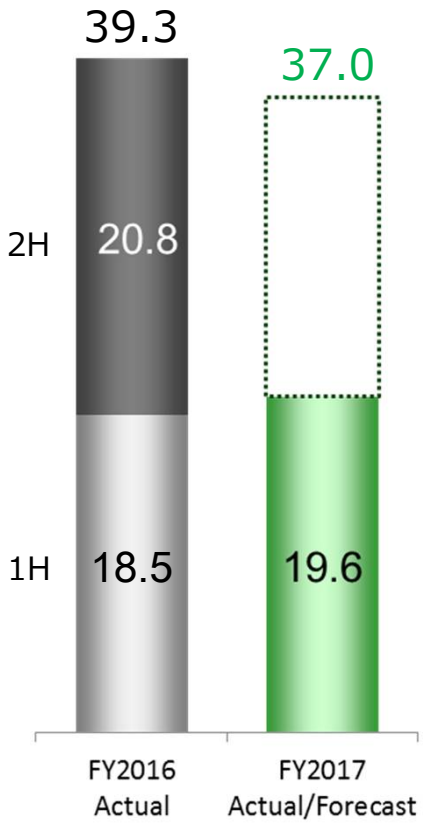
Source: JPEA

2. Segment Results

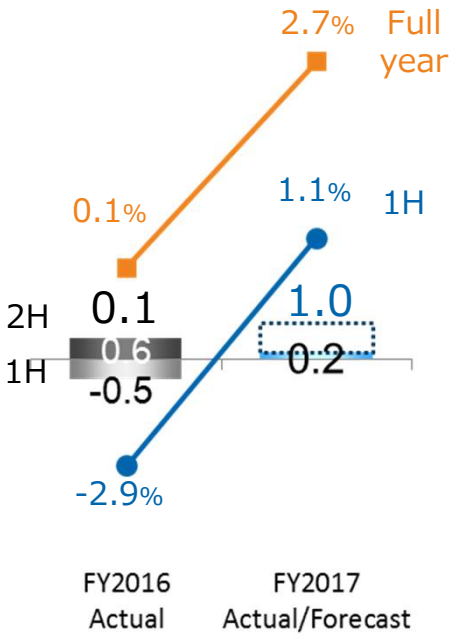
Automotive lithium-ion battery

(Billion yen)

Net sales



Operating income/ operating income ratio



FY2017 1H Sales Overview

- Lithium Energy Japan
  Sales of lithium-ion batteries for plug-in hybrid electric vehicles declined
- Blue Energy
  Sales of lithium-ion batteries for hybrid vehicles increased due to strong sales of models adopting them

Main Profit Change Factors

Structure to generate profits is maintained thanks to the impact of sales increase and streamlining

2. Segment Results

Automotive lithium-ion battery

Increase in inquiries for 12V lithium-ion batteries

For engine start

Response to RoHS directive, ELV directive

Inquiries regarding 12V lithium-ion batteries from European automobile manufacturers have increased

New order

Received order from a new customer

New inquiries

Making proposal to several European automobile manufacturers

For self-driving

Evolution of self-driving system

Various electronics (cameras, sensors) have increased
Interior accessories have increased as how to spend time in a vehicle is to diversify

Vehicle's electricity demand is to increase
Necessity for back-up dedicated batteries

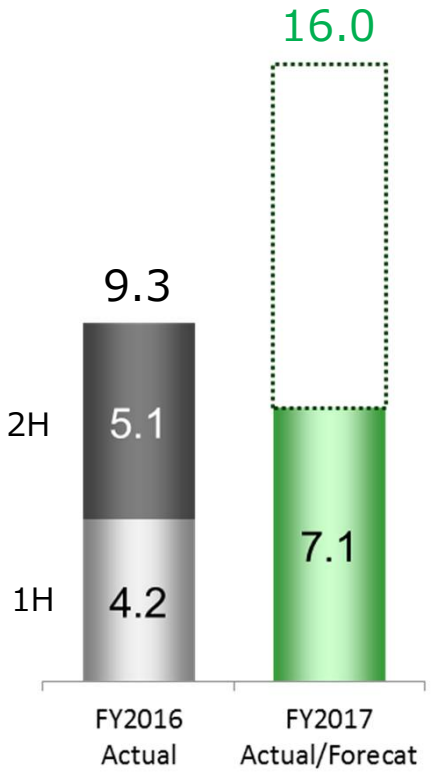
New inquiries

Making proposal to several Japanese automobile manufacturers

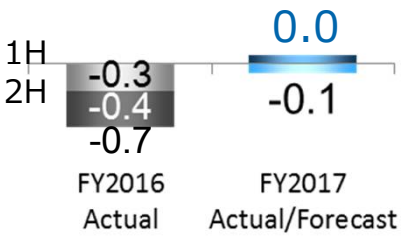
2. Segment Results

Others

Net sales (Billion yen)



Operating income (Billion yen)



Topics

- Began production of lithium-ion batteries for submarines
- Sales of specialty batteries increased

Main Profit Change Factors

Increased sales of specialty batteries

3. Consolidated Results Forecast

(Billion yen)

		FY2016 Actual		FY2017 Initial forecast		FY2017 Revised forecast		FY2017 1H	
		Net sales	Operating income (Op. income ratio: %)	Net sales	Operating income (Op. income ratio: %)	Net sales	Operating income (Op. income ratio: %)	Net sales	Operating income (Op. income ratio: %)
Automotive battery	Japan	67.6	5.7 (8.4)	85.0	5.7 (6.7)	85.0	6.2 (7.3)	39.3	2.0 (5.2)
	Overseas	170.6	10.5 (6.1)	188.0	11.3 (6.0)	188.0	10.8 (5.7)	88.7	4.1 (4.6)
Industrial battery and power supply		72.8	8.7 (12.0)	74.0	8.5 (11.5)	74.0	8.5 (11.5)	29.5	0.8 (2.8)
Automotive lithium-ion battery		39.3	0.0 (0.1)	37.0	1.0 (2.7)	37.0	1.0 (2.7)	19.6	0.2 (1.1)
Others		9.3	-0.7 (-7.5)	16.0	-	16.0	-	7.1	-0.1 (-1.3)
Total		359.6	24.2 (6.7)	400.0	26.5 (6.6)	400.0	26.5 (6.6)	184.2	7.1 (3.8)

Note: Operating income is operating income before amortization of goodwill and operating income ratio is operating income ratio before amortization of goodwill.

3. Consolidated Results Forecast

Consolidated results forecast

While some negative profit factors such as price increase of lead, which is a main raw material, are anticipated, both net sales and profits are expected to secure the levels of the initial consolidated results forecast, as sales volume for new vehicles increase in the automotive battery (Japan) and due to the impact of price increase of replacement batteries.

Segment	Change	Factors
Automotive battery (Japan)	Operating income before amortization of goodwill +¥0.5 bn	➢ In 1H, profits increased reflecting sales volume increase of batteries for new vehicles and the acquisition of Panasonic's Japanese lead-acid battery business. ➢ In 2H, while the price increase of replacement batteries is expected to have a certain impact, profits are expected to decline given the price increase of lead, a main raw material. ➢ For full year, operating income before amortization of goodwill is expected to exceed the initial forecast by 0.5 billion yen.
Automotive battery (Overseas)	Operating income before amortization of goodwill -¥0.5 bn	➢ In 1H, the price of lead, a main raw material, increased and profits declined as the raw material price increase was not fully transferred to selling prices. ➢ In 2H, sales are expected to increase as profits improve at bases in Europe, China and Australia as the raw material price will be fully transferred to selling prices. ➢ For full year, operating income before amortization of goodwill is expected to be 0.5 billion yen lower than the initial forecast.

4. Balance Sheet

(Billion yen)

	3/31/2017	9/30/2017	Change
Current assets	173.2	175.1	+1.9
・Cash and deposits			-1.5
・Notes and accounts receivable			-5.4
・Inventories			+10.4
Fixed assets	197.3	201.7	+4.4
・Property, plant and equipment			-2.9
・Investment securities			+6.3
Total assets	370.5	376.9	+6.4

Collection of accounts receivable progressed smoothly as sales increased at the end of the fiscal year

Inventories accumulated for the demand season

Depreciation and amortization exceeded capital investment

Impact of price increase in stock holdings
Additional investment in equity-method affiliate

	3/31/2017	9/30/2017	Change
Liabilities	182.4	185.9	+3.5
・Notes and accounts payable			-3.3
・Electronically recorded obligation			+4.7
・Payables			-8.4
・Bonds			+10.0
Net assets	188.2	191.0	+2.8
・Net unrealized gain on available-for-sale securities			+2.6
Total liabilities and net assets	370.5	376.9	+6.4

Change in settlement method

Impact of price increase in stock holdings

	3/31/2017	9/30/2017
Equity ratio	43.6%	43.5%
ROE (return on equity)	8.7%	-
Interest-bearing debt	¥74.3bn	¥86.7bn

Note: ROE is a ratio to profit before amortization of goodwill.

5. Capital Investment, Depreciation, R&D Costs

(Billion yen)

		FY2016 1H	FY2017 1H	FY2016 Full year	FY2017 Full year (Forecast)
Capital Investment		7.7	5.5	19.9	25.0
Automotive battery	Japan	0.6	0.8	1.9	3.4
	Overseas	1.6	2.4	3.7	10.0
Industrial battery and power supply		0.4	0.3	1.2	2.1
Automotive lithium-ion battery		0.3	0.6	1.7	2.2
Others		4.7	1.4	11.4	7.3
Depreciation		7.3	8.2	15.2	19.0
Automotive lithium-ion battery		2.7	2.6	5.5	5.5
R&D Expenses		4.4	4.8	9.5	12.0
(Ratio of R&D expenses to net sales)		2.8%	2.6%	2.6%	3.0%

6. Cash Flow Statements

(Billion yen)

Operating C/F	4.0
・Profit before income taxes	6.5
・Depreciation and amortization	9.0
・Decrease in receivables	6.5
・Increase in inventories	-10.5
・Increase in trade accounts payables	-2.3
・Income taxes paid, etc.	-5.2

Investing C/F	-13.7
・Purchase of property, plant and equipment	-10.5
・Purchase of investment securities	-2.6

Financing C/F	8.0
・Increase in borrowings	2.2
・Bond issuance	10.0
・Dividends paid	-2.9

Balance of Cash and Cash Equivalents			
April 1, 2017	24.7	Sept 30, 2017	22.8

Free C/F *1	-9.7

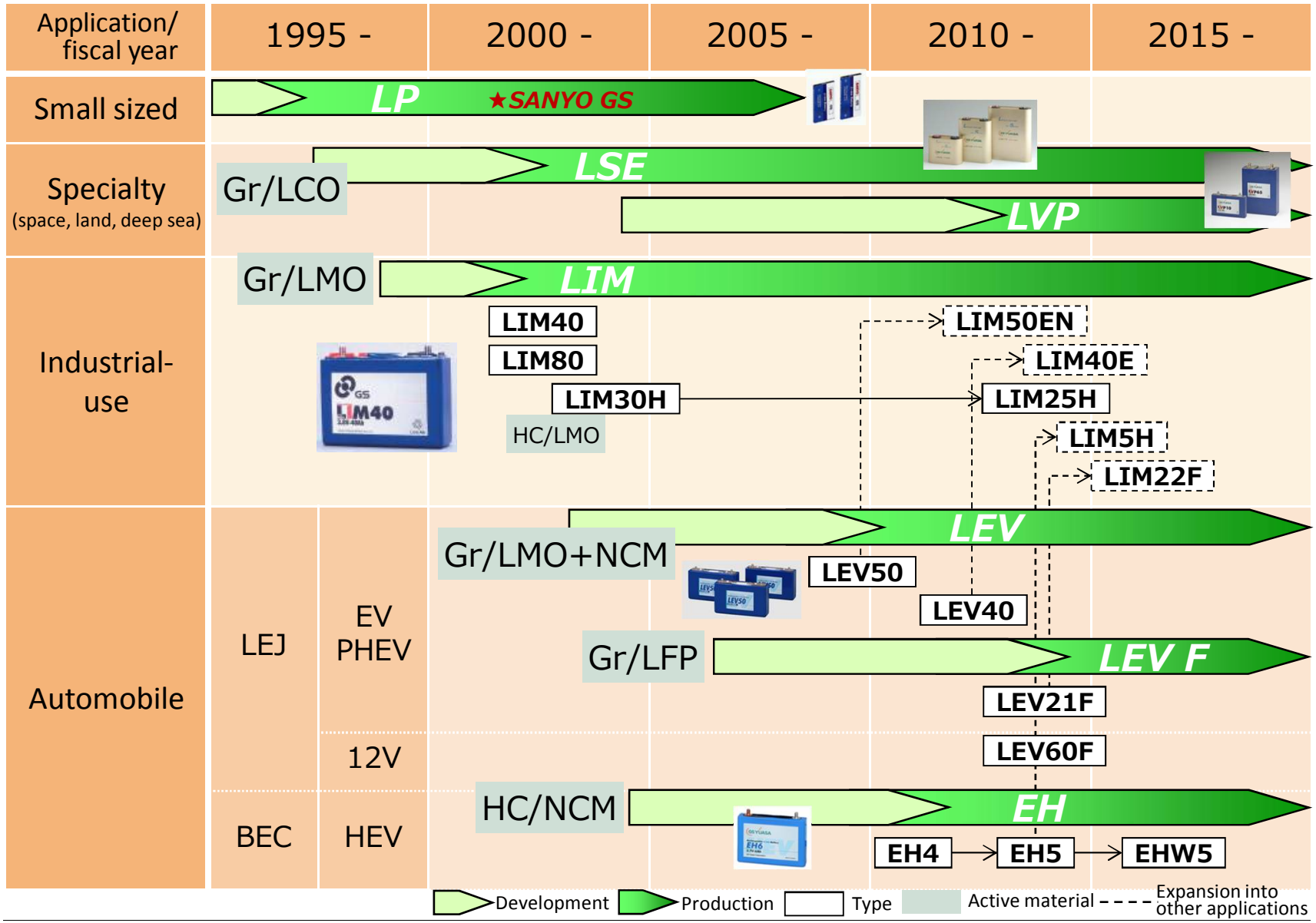
Highlights

- Free C/F was -¥9.7 billion due to the purchase of property, plant and equipment but it was covered with funds in hand and bond issuance.
- As a result, cash balance at the end of 2Q was ¥22.8 billion.

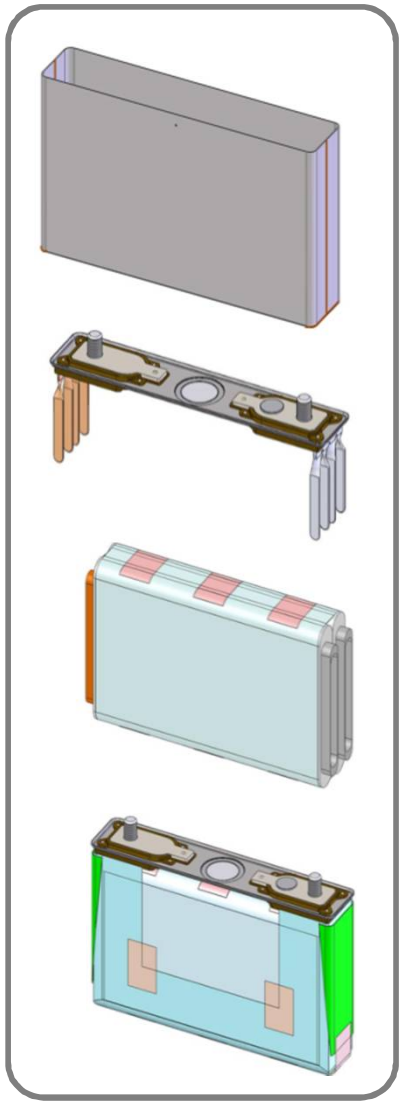
*1: Total of cash flow from operating activities and cash flow from investing activities

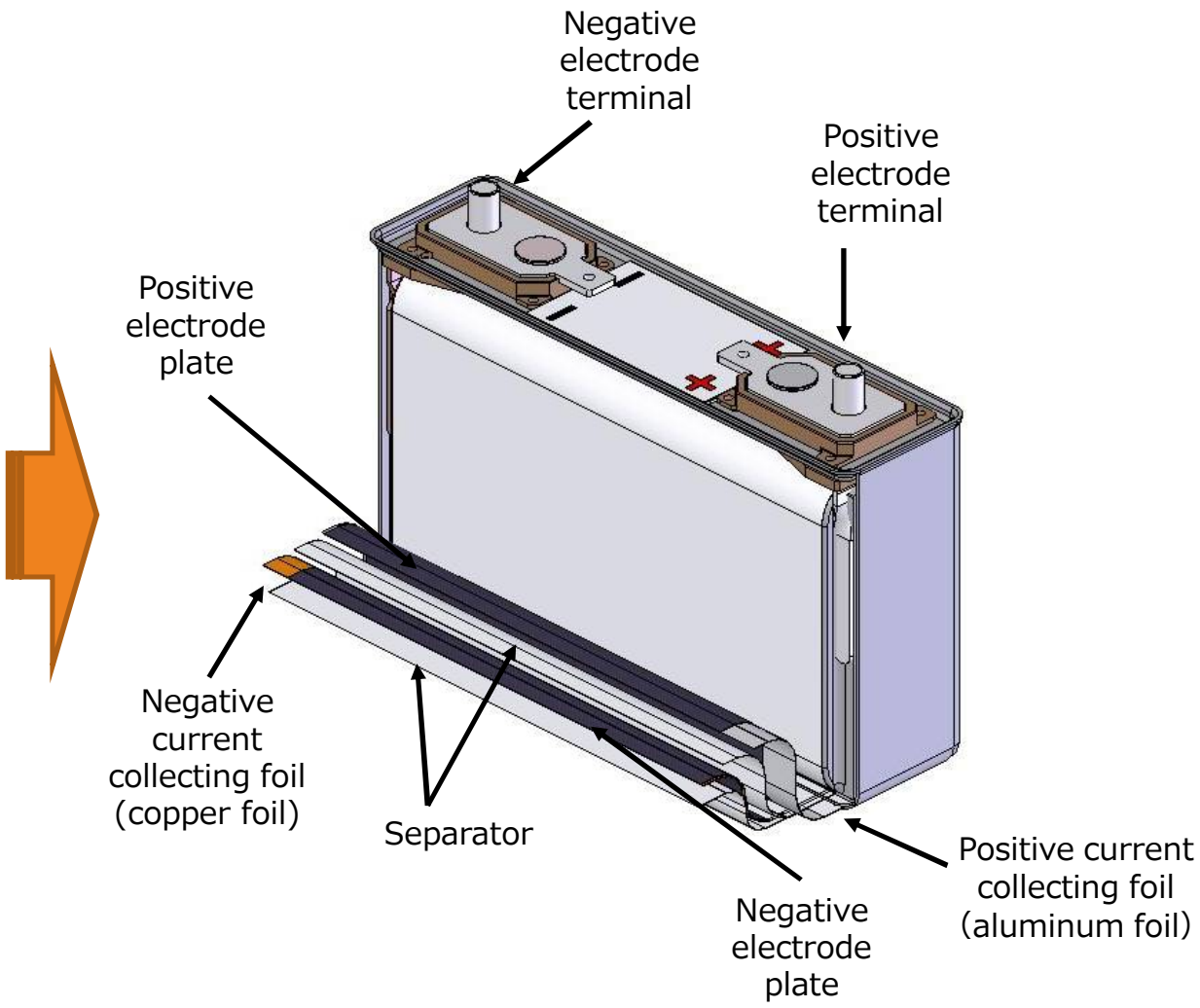
II. GS Yuasa's Next-generation Battery Technology and Future Prospects

1. Next-generation Battery Technology
(Applications, Types of Lithium-ion Batteries)



1. Next-generation Battery Technology
(Basic Structure of Lithium-ion Batter Cell)





1. Next-generation Battery Technology
(Lithium-ion Batteries for Environmentally Friendly Vehicles)

Lithium Energy Japan	
Development, manufacturing and sales of EV and PHEV cells, modules	
Capacity	8 million cells/year (2GWh)
Shipment	21 million cells
Partners	Mitsubishi Corporation, Mitsubishi Motors

GS Yuasa International Ltd.
Next-generation cell R&D 12V batteries for start & stop vehicles Supervision of group operating companies

Automotive

S&S

HEV

PHEV

EV

Next-generation EV

Lithium Energy and Power GmbH & Co. KG	
Development of next-generation high performance lithium-ion battery	
Partners	BOSCH, Mitsubishi Corporation

Blue Energy Co., Ltd.	
Development, manufacturing and sales of HEV cells and modules	
Capacity	22 million cells/year
Shipment	34 million cells
Partners	HONDA

- We are building the cooperation structure to respond to all environmentally friendly vehicles.

1. Next-generation Battery Technology
(Lithium-ion Battery Production Bases)

Blue Energy (Osadano Plant)

● Osadano Plant
Mass production started: Jan 2011
LiB manufactured: LiB for HEV

Automotive

Lithium Energy Japan (Ritto Plant)

● Ritto Plant
Mass production started: Apr 2012
LiB manufactured: LiB for EV, PHEV

Automotive

GS Yuasa International (Kyoto Plant)
GS Yuasa Technology (Kyoto Plant)

● GS Yuasa International (Kyoto Plant)
Mass production started: Dec 2010
LiB manufactured: LiB for industrial use
(high energy density, high power)

Industrial-use

● GS Yuasa Technology (Kyoto Plant)
LiB manufactured: specialty LiB for airplane, etc.

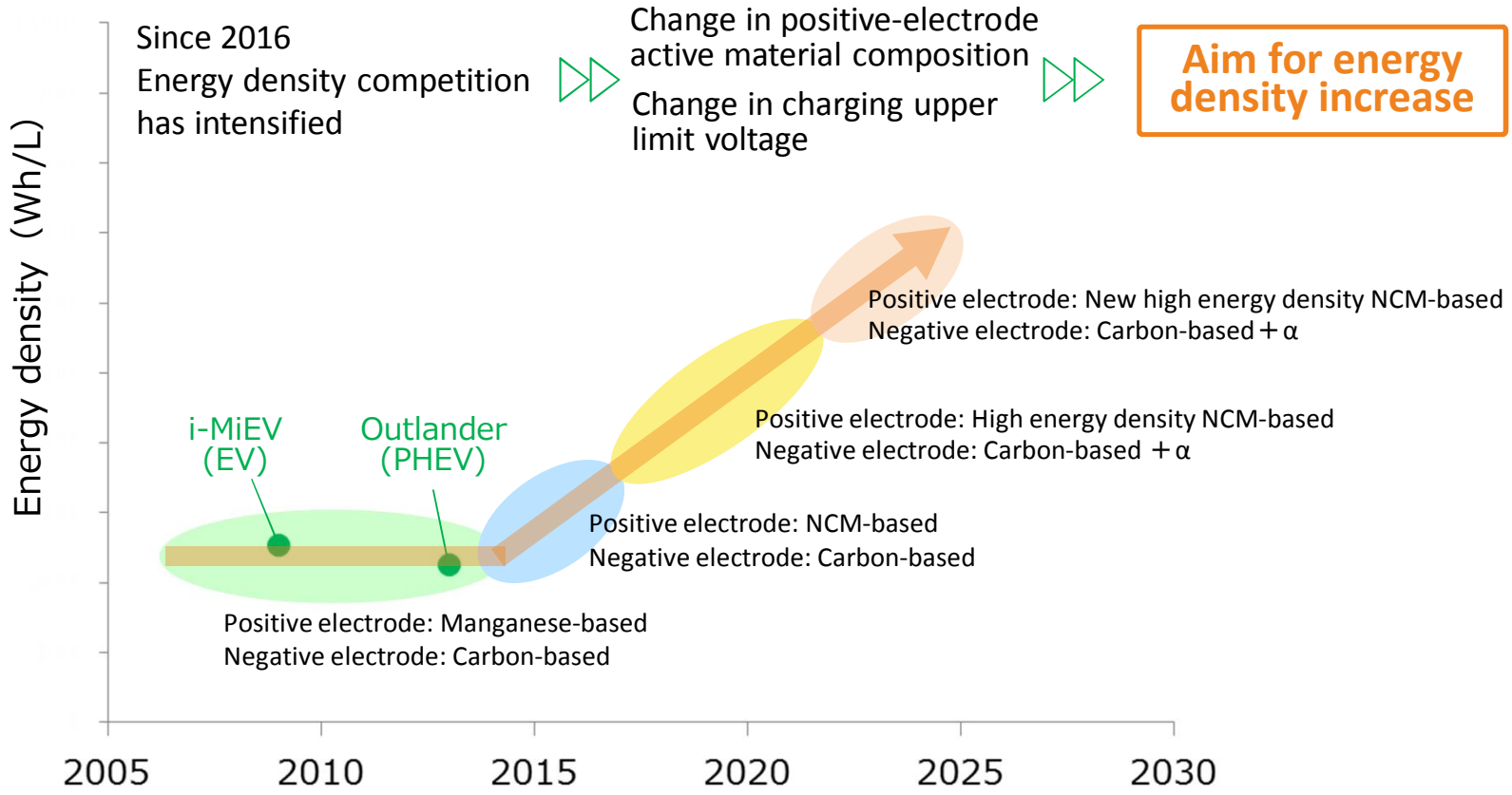
Specialty

GS Yuasa Technology (Kusatsu Plant)

● Kusatsu Plant
LiB manufactured: LiB for submarines

Specialty

1. Next-generation Battery Technology
(Energy Density Roadmap)



- GS Yuasa Group has been developing products taking into account the golden age of electric vehicles

1. Next-generation Battery Technology
(Lithium-ion Battery's Application Fields)

Port AGV

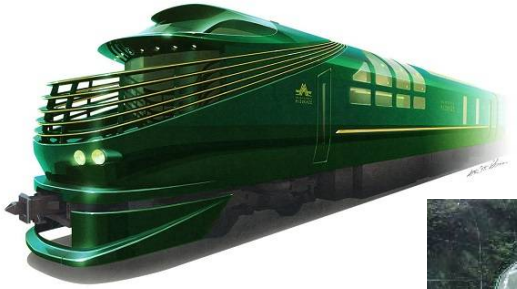
Cranes, construction equipment

UPS

Bus

Power storage system

Railway



1. Next-generation Battery Technology
(Applications of Industrial-use Lithium-ion Batteries)

High input output applications

Market

Railway cars without overhead wiring, hybrid railway cars, construction equipment, feeder cable compensation, etc.



Required performance

High rate specifications, high input output density, long life, highly reliable, safety

High energy applications

Market

Power storage, disaster prevention, peak cutting, UPS, etc.

Required performance

High energy density, long life, highly reliable, safety

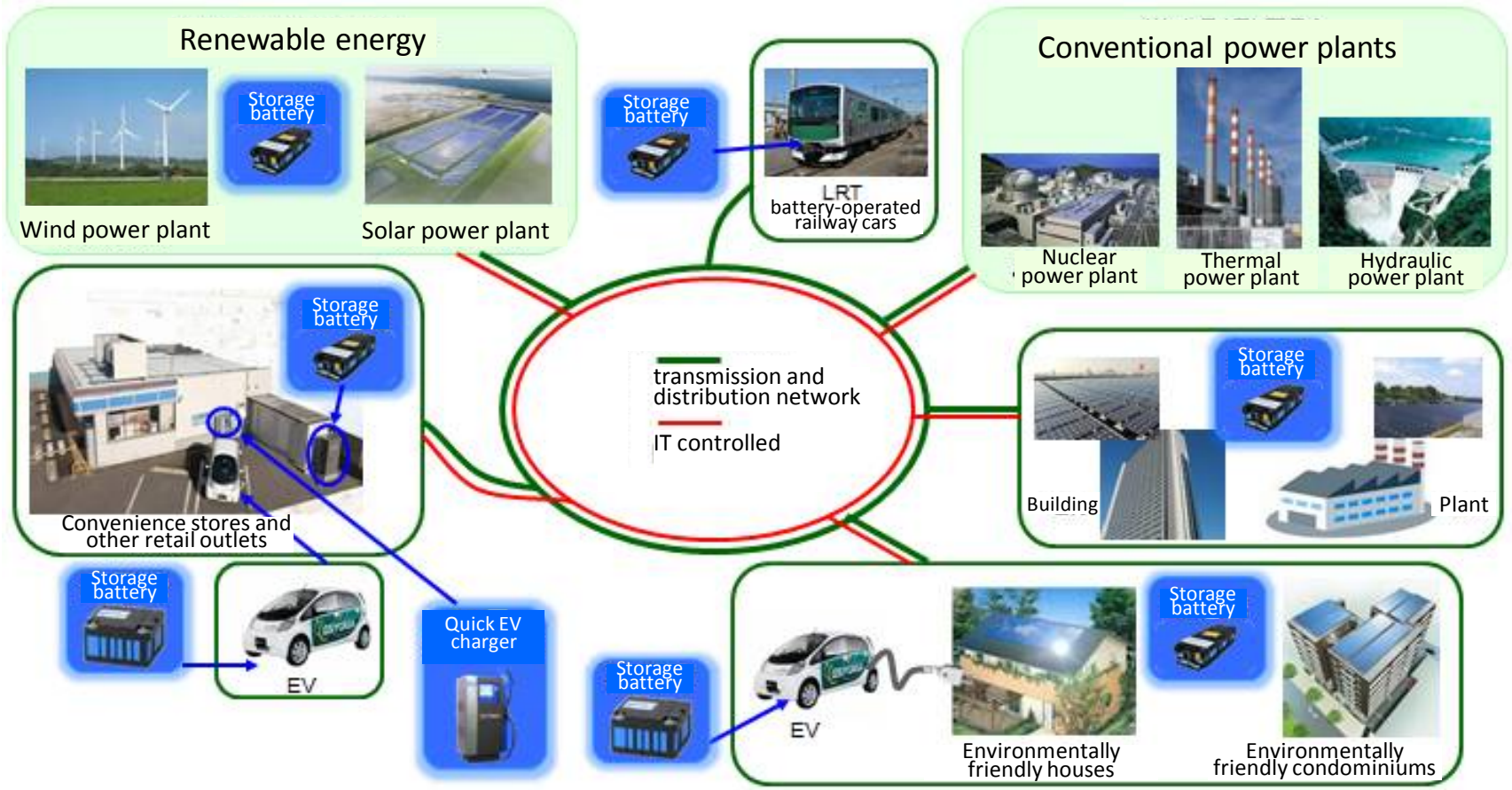
- High input output applications (rapid, large-current charging/discharging)

  <Applications>
  Hybrid crane, hybrid rail car, regenerative power storage for railway, load leveling system, other high input output industrial-use power storage system

- High energy applications (store and use large amount of energy)

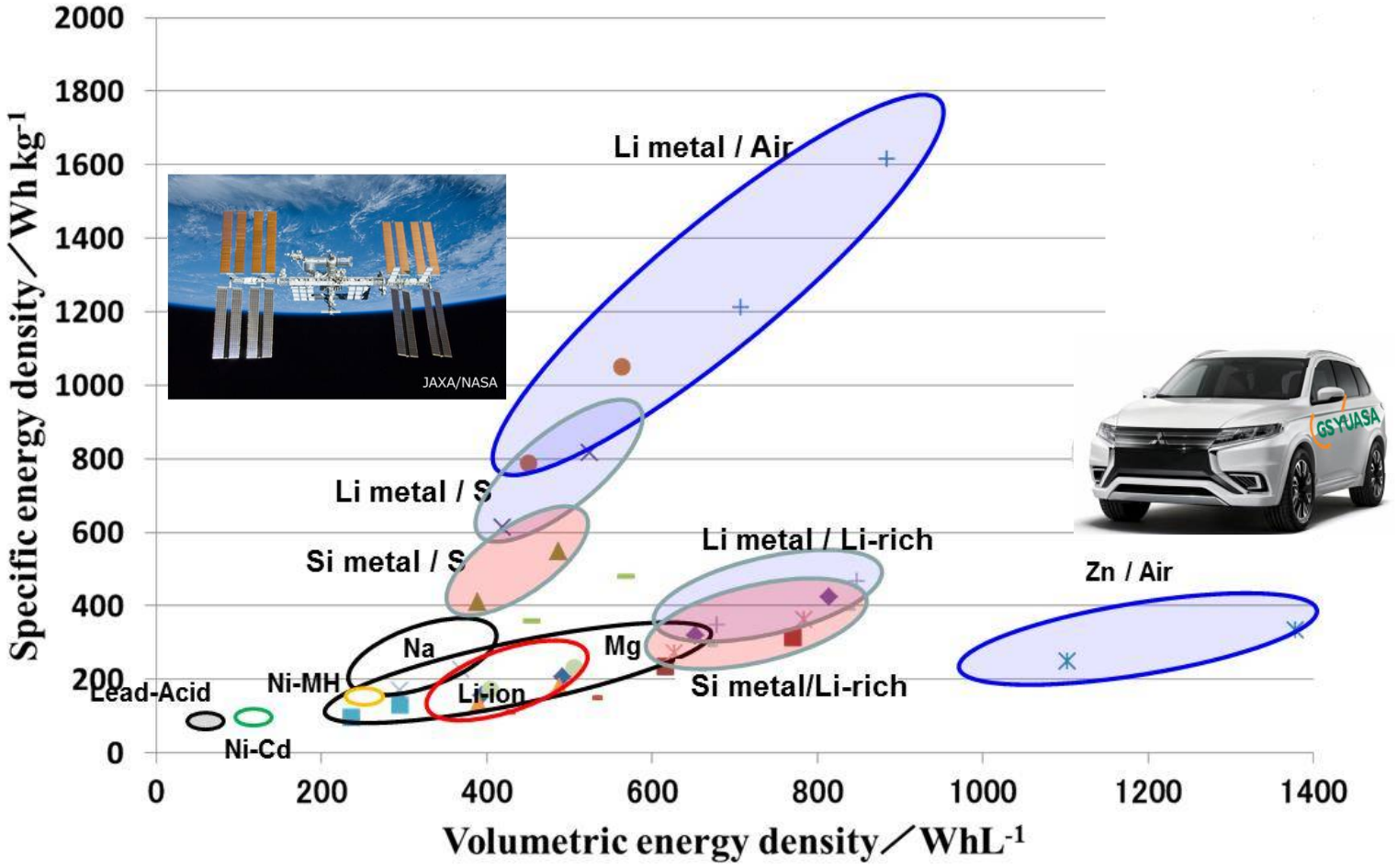
  <Applications>
  Industrial machinery power source, standby power source for various facilities, power storage for smart grid, power source for AGV, etc., other high energy density industrial-use power storage system

1. Next-generation Battery Technology
(Smart Grid-related Products)



- GS Yuasa products will play more and more important roles in future electric power network. (peak shift, storage of excessive electricity, load leveling, quick charger)

2. Future Prospects (Post Lithium-ion Battery Map)

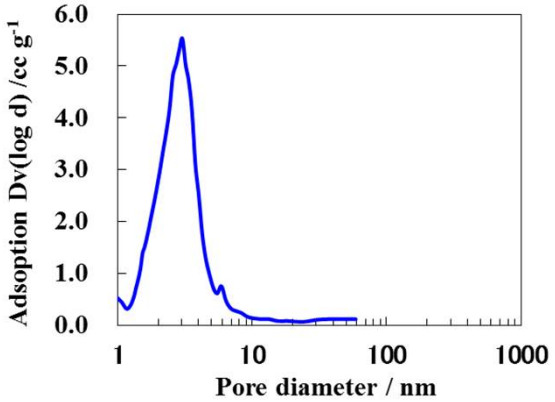


- There is a possibility of creating a small and light battery (energy density of more than three times the existing LiB) by using oxygen or sulfur for positive-electrode active material and Li metal or Si alloy for negative-electrode active material.

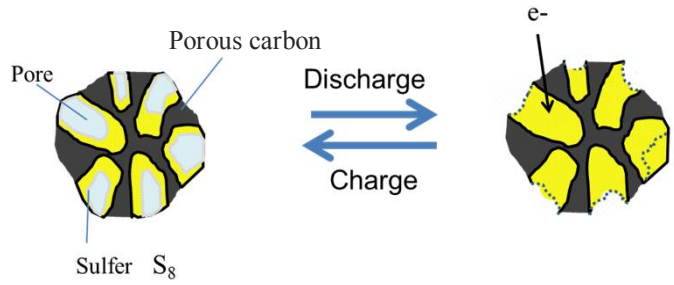
2. Future Prospects (Sulfur Battery Technology)

GS YUASA

GS Yuasa's proprietary technology

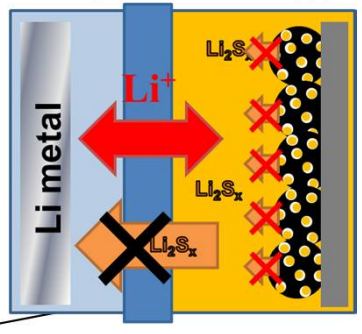


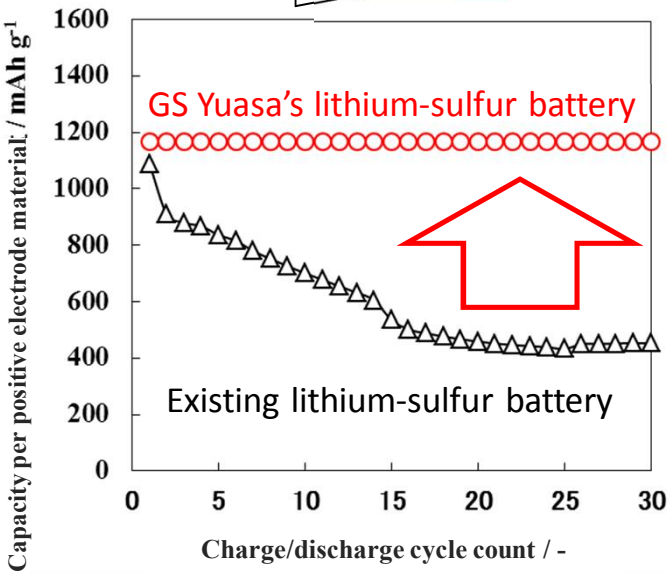
Porous carbon's pore distribution



Conceptual diagram of state of charge/ discharge of sulfur-porous carbon compounds

GS Yuasa's proprietary technology





- GS Yuasa's proprietary technology enabled formation of electric conductive network for sulfur, which is non-conductive, resulting in successful improvement of charge/discharge reversibility. We are progressing toward realization of batteries with energy density of three times higher than the existing LiB.

2. Future Prospects (All-solid Battery Technology)

Characteristics and issues of all-solid batteries

[Characteristics]

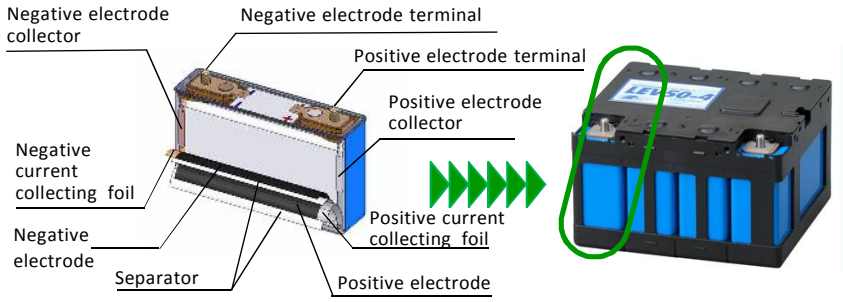
- -High safety
- -Easy to have series-parallel of multiple cells
  (can create compact high voltage battery)
- -Wide working temperature range
  (-30℃ to 100℃)
- -Superior rapid charge-discharge performance

[Issues]

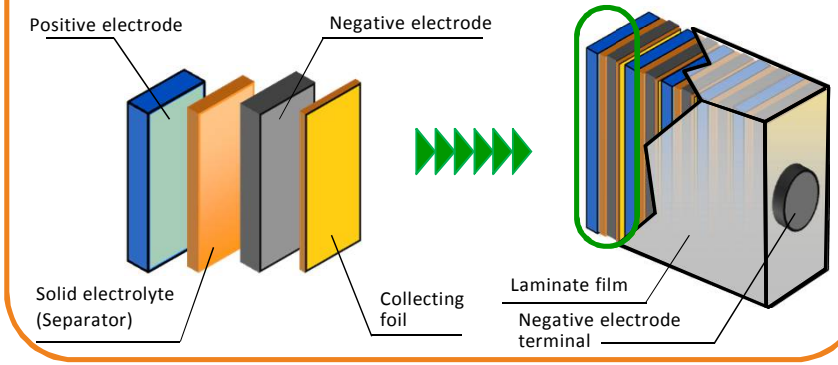
- -Improving the atmospheric stability of solid electrolyte
- -Stabilizing the reactive surface of active material and solid electrolyte
- -Lowering cost

Battery structure comparison

[Existing LiB （wound structure)]



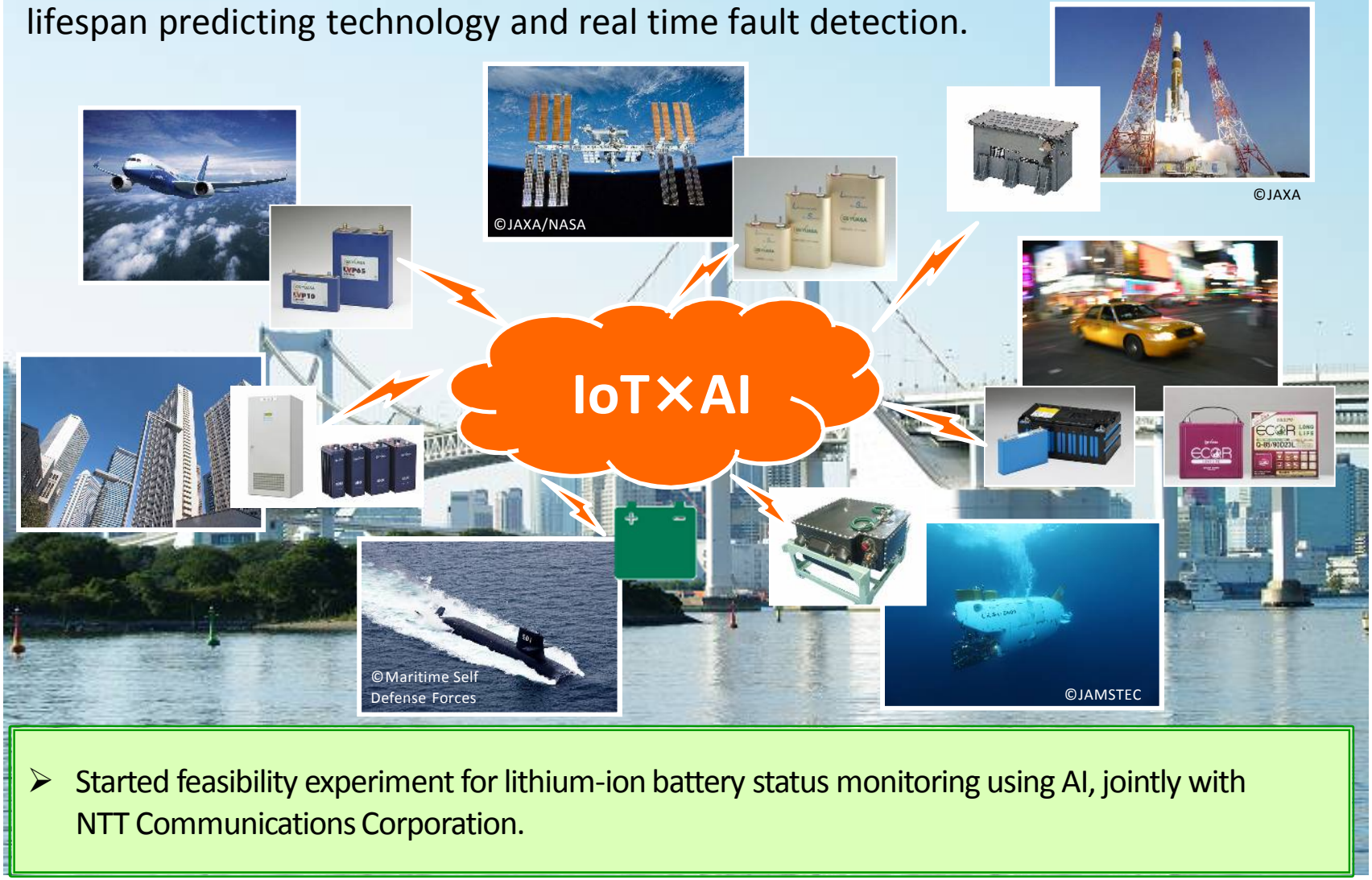
[All-solid LiB (bi-polar laminated structure)]



- We are working to solve the issues of solid electrolyte.
- Along with aiming for drastic improvement in the performance of existing LiB using solid electrolyte technology, we are developing safer and high-performance batteries by applying this in post-LiB including sulfur and air cells.

2. Future Prospects
(Offering of Solutions Utilizing IoT, AI Technology)

We will further improve the reliability and safety of the battery using highly precise lifespan predicting technology and real time fault detection.

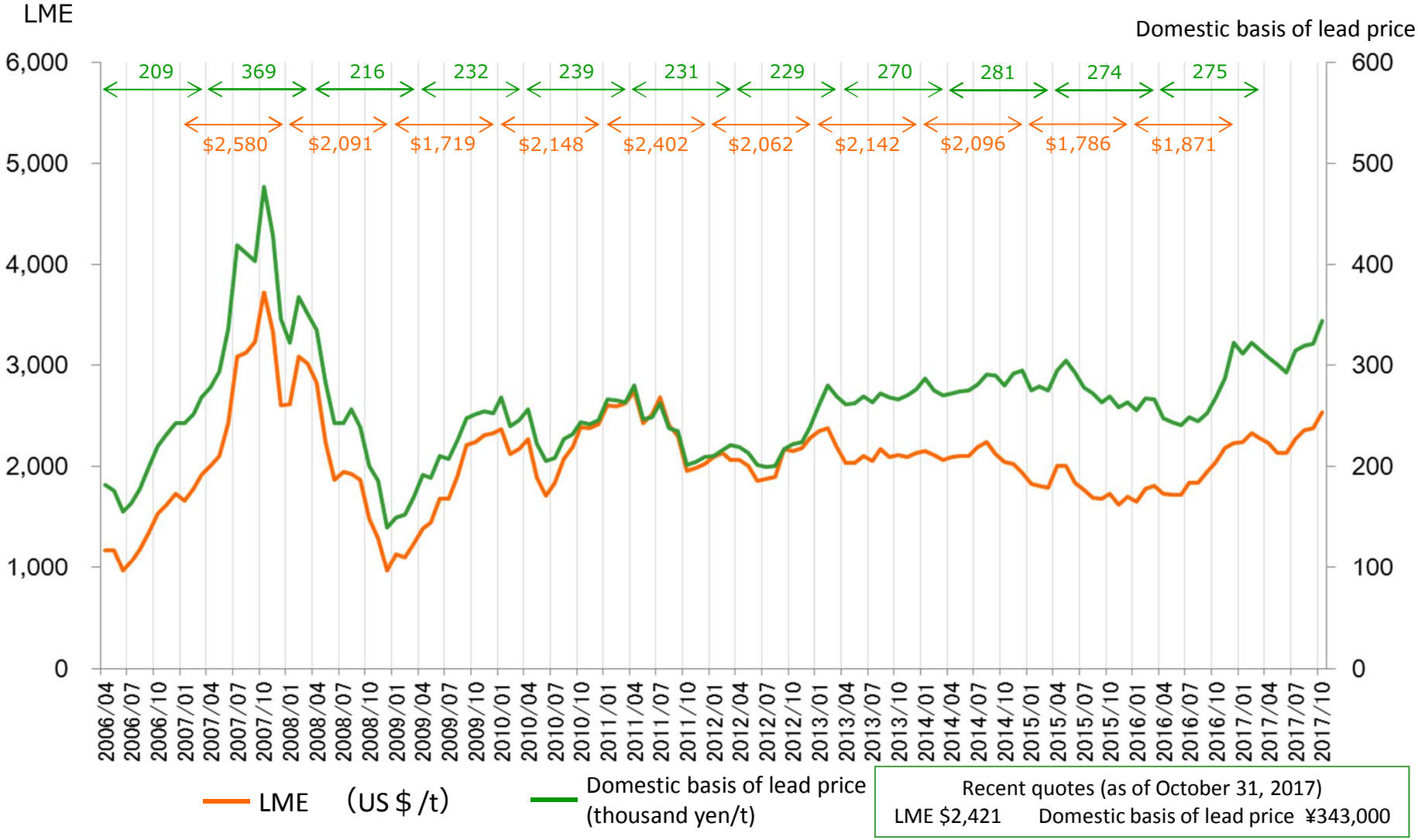


- Started feasibility experiment for lithium-ion battery status monitoring using AI, jointly with NTT Communications Corporation.

Although this document has been prepared with information believed to be correct, GS Yuasa Corporation does not guarantee the accuracy or the completeness of such information. Also, the information herein contains forward-looking statements regarding the Company's plans, outlooks, strategies and results for the future. All the forward-looking statements are based on judgments derived from information available to the Company at the time of release. Certain risks and uncertainties could cause the Company's actual results to differ materially from any projections presented herein.

Reference

Raw Materials Prices



Recent quotes (as of October 31, 2017)
LME $2,421 Domestic basis of lead price ¥343,000

Interest-Bearing Debt, D/E Ratio