



Creating the Future of Energy

Investors' Guide 2021



GS Yuasa Corporation
(TSE : 6674)



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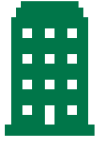
2. About our business

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1. About GS Yuasa



Corporate profile



Corporate name	GS Yuasa Corporation
Establishment	April 1, 2004 ※Japan Storage Battery(from 1917) and Yuasa Corporation(from 1918) had a corporate merger
Head office	1, Inobanba-cho, Nishinosho, Kisshoin, Minami-ku, Kyoto
Capital stock	33.0 billion yen
Net sales(FY2021)	432.1 billion yen
Number of employee	Group Consolidated 13,571 (as of March 31,2022)
Listed-Financial Instruments Exchange	Tokyo Stock Exchange (TSE : 6674)



President **Osamu Murao**

He joined Japan Storage Battery (currently GS Yuasa) in April 1982. He was in charge of Quality Control, Technology, Industrial Batteries and Power Supplies business unit as a director in addition to his business experience in Manufacturing and Production Technology Departments. After being appointed as President of the Company in June 2015, he has been supervising the Group as CEO and guiding the business management, by directing the formulation of Mid-Term Management Plans and demonstrating leadership for accomplishing them.

Philosophy

Innovation and Growth

We are committed to people, society and the global environment through innovation and growth of our employees and business entities.



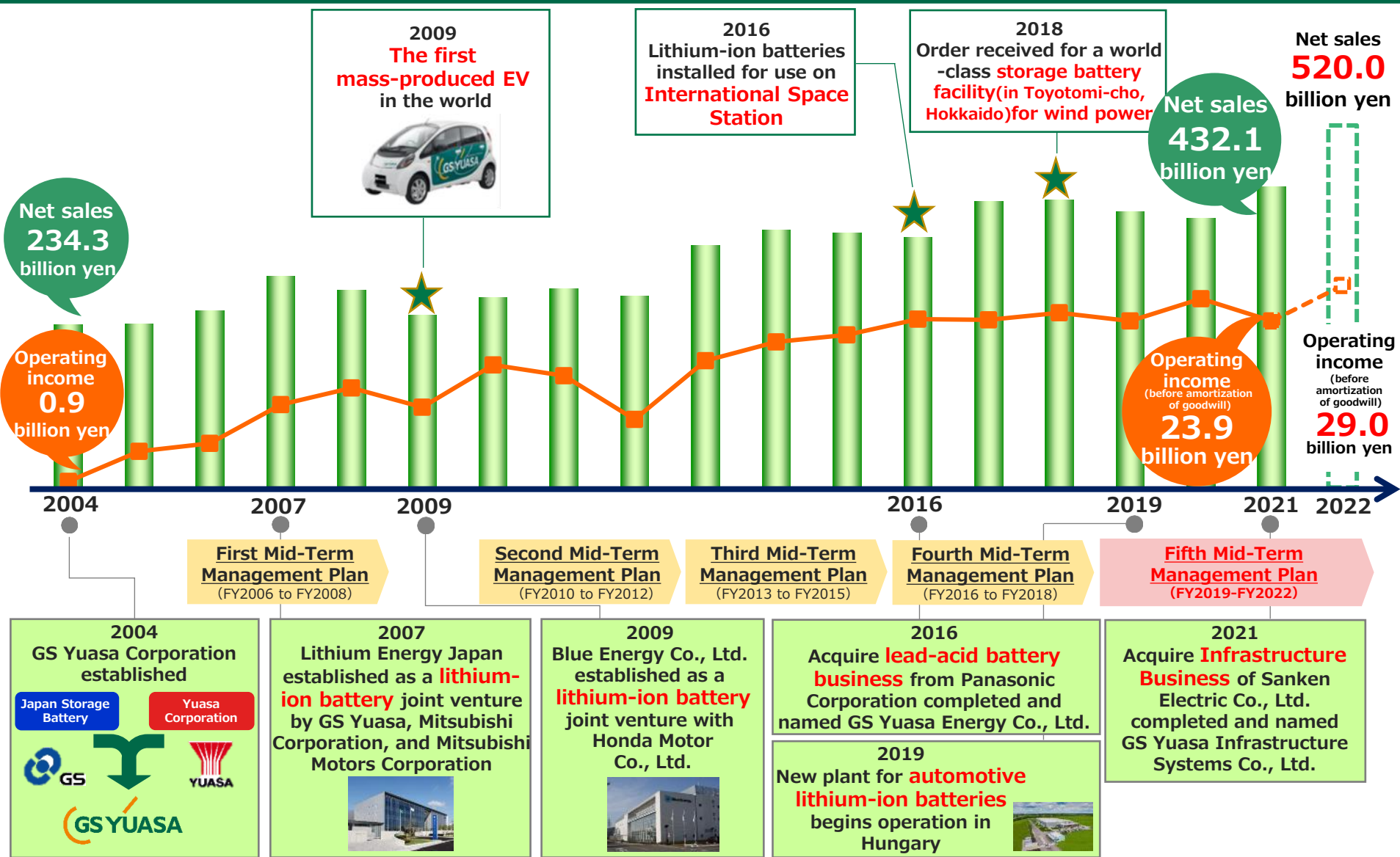
Creating the Future of Energy



Management Vision

We are committed to delivering security and comfort to our customers around the globe through advanced technologies developed in the field of stored energy solutions.

History after corporate merger





The latest sales breakdown and main products




Lithium-ion batteries for HEV



Lithium-ion batteries for space



Automotive lead-acid batteries (Japan)



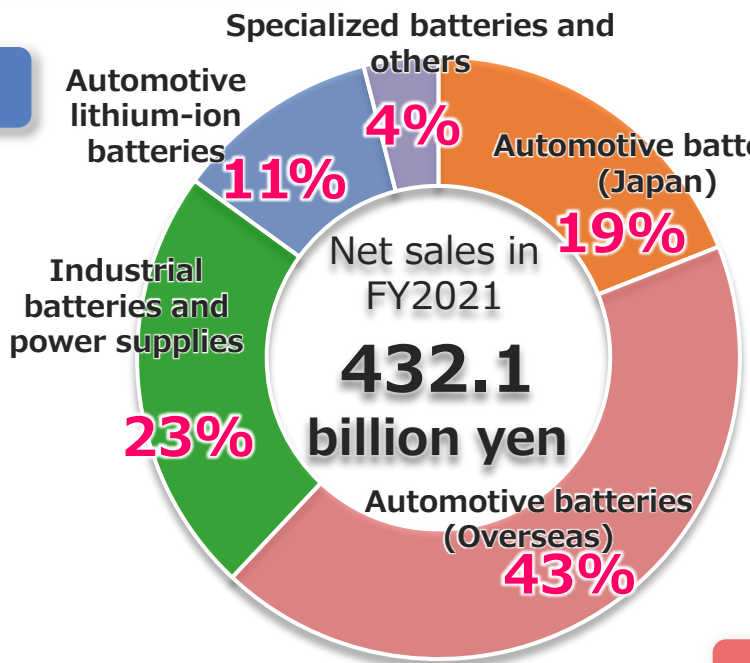
Lithium-ion batteries for EV, PHEV




Lighting for facility



Power supply systems for back up




Motorcycle lead-acid batteries (Japan)



Automotive lead-acid batteries (Overseas)



Motorcycle lead-acid batteries (Overseas)



Industrial lithium-ion batteries



Lead-acid stationary batteries



Lead-acid batteries for forklifts



The latest sales ratio by regions and global network

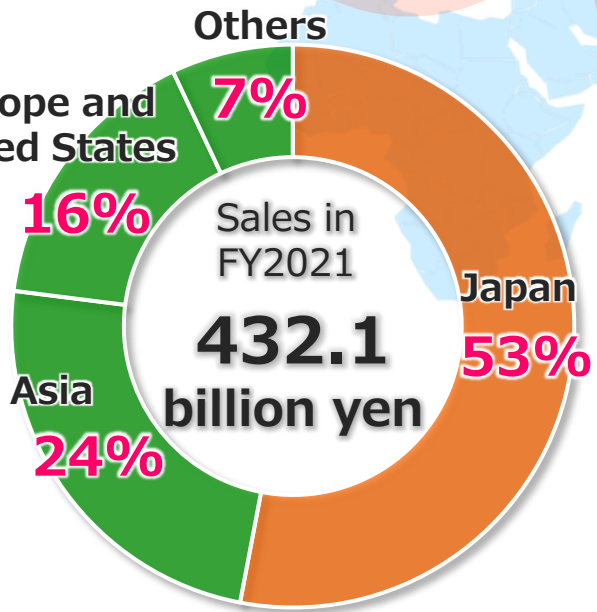


United States

Europe
England, Italy, Spain, Germany, France, Hungary, Turkey

Asia
Japan, China, Taiwan, Vietnam, Malaysia, India, Indonesia, Myanmar, Pakistan, Thailand

Others
Australia
New Zealand



We have business in 19 countries 38 sites mainly in South East Asia or China.
(as of November, 2021)



1 Technology and development

- ✓ Develop various products used for deep sea to space
- ✓ Provide products with high performance such as batteries for ISS vehicles
- ✓ Researched and developed lithium-ion batteries from 1980s and mass produced lithium-ion batteries for EVs in the world for the first time in 2009



2 GS Yuasa brand

- ✓ GS Yuasa brand has top class market share both in Japan and the world
- ✓ Customer base built by history of the company for over 100 years

3 Abundant Network

- ✓ Utilize 100 service sites or more in Japan (Industrial batteries and power supplies business)
- ✓ Suggest the best batteries for customers in 4,000 dealers or more in Japan (Automotive batteries business)
- ✓ Utilize global sites with a focus on South East Asia or China





Fifth Mid-Term Management Plan

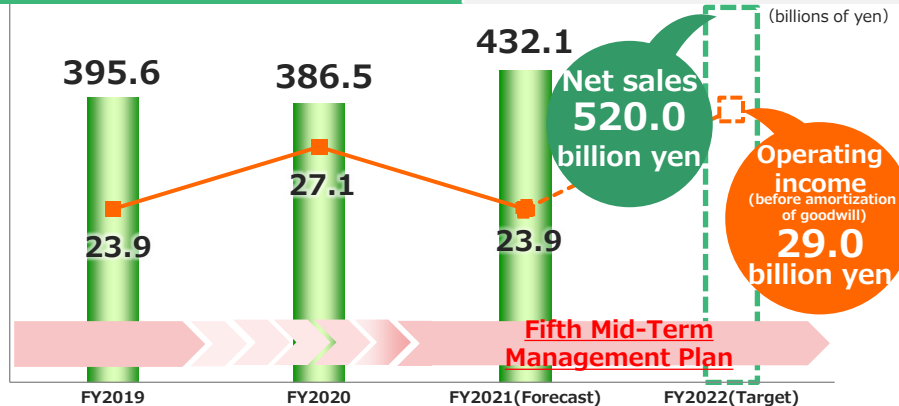


Mid-Term Management Policy(FY2019~FY2022)

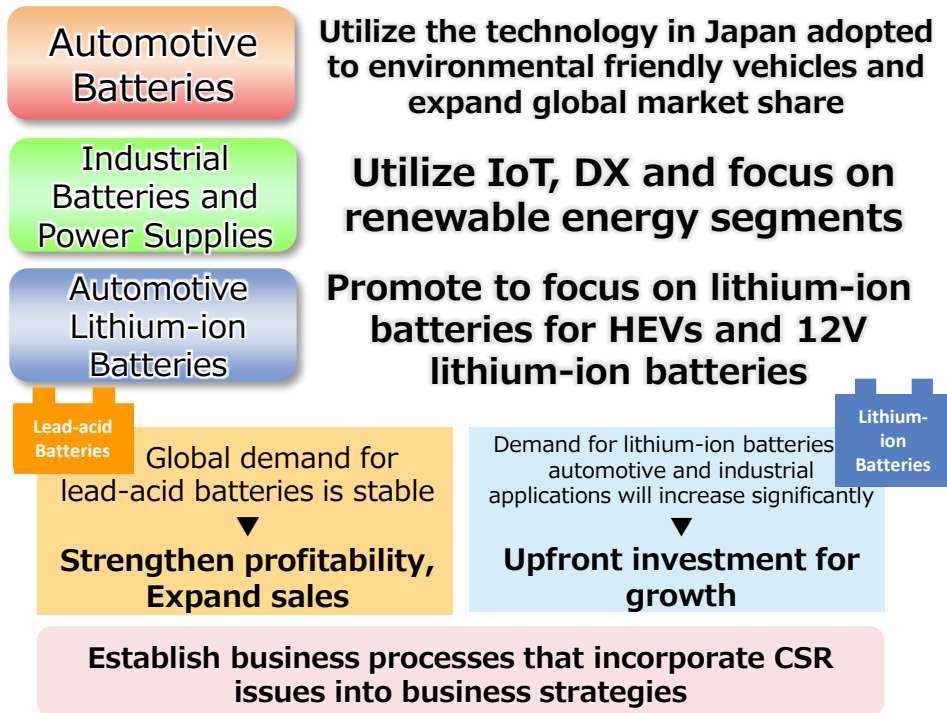
To engage in strategic corporate activities that lead to sustainable growth in both the lead-acid batteries business and lithium-ion batteries business through the creation of new value based on the concept of "Mono-Koto Zukuri (product and service creation)."

Mid-Term Management Target(FY2022^{*1})

Net sales	460.0 billion yen or more
Operating income	28.0 billion yen or more
ROE (Return On Equity) ^{*2}	8 % or more
Total payout ratio ^{*2}	30 % or more



Points of Mid-Term Management Plan



We aim to achieve sustainable business growth and contribute to the sustainable development of society

*1 : The Fifth Mid-Term Management Plan originally covered the period from fiscal 2019 to fiscal 2021. Due to the impact of the novel coronavirus pandemic, however, we have excluded fiscal 2020 as a single-fiscal-year plan and changed the fifth plan to a four-year plan ending in fiscal 2022 (the term ending in March 2023). Capital investment is currently being examined.

*2 : The above indices are based on profit attributable to owners of parent before amortization of goodwill.

2. About our business



Overview of Automotive Batteries (Japan)



Outline of business

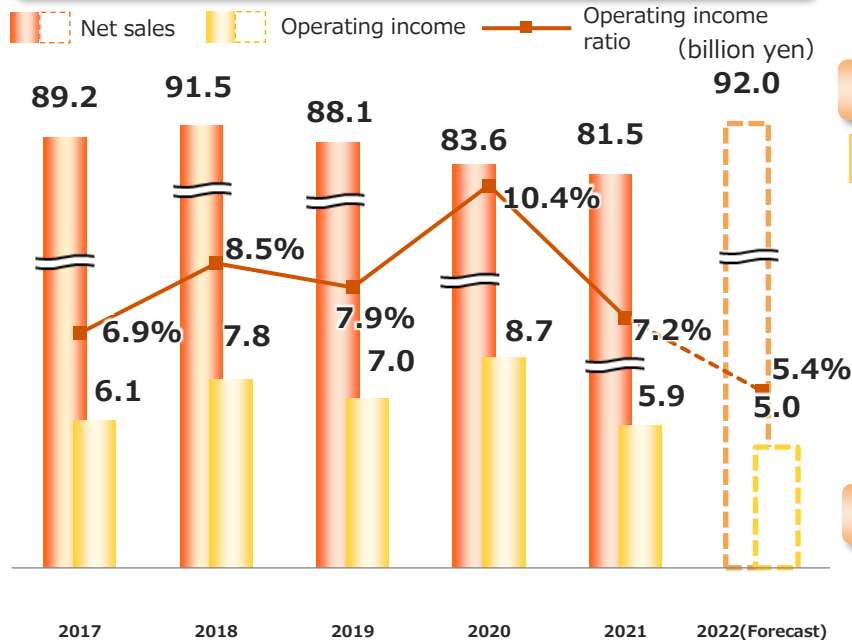
Manufacture and sell automotive or motorcycle lead-acid batteries in Japan



No.1 share in Japan
(New automobile and replacement batteries)



Net sales, Operating income and ratio



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

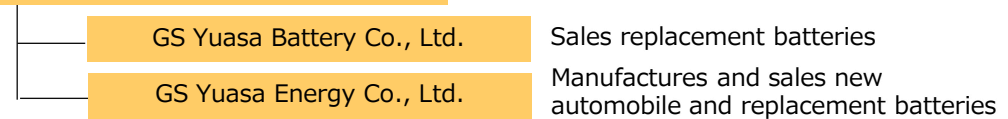
Feature of business

- Acquired lead-acid battery business from Panasonic Corporation (Current GS Yuasa Energy Co., Ltd.)
- New automobile batteries and replacement batteries we have. Replacement batteries can get higher income than new one
- Replacement batteries have high demand from October to December when it becomes extremely hot in summer or cold in winter
- Market share of new automobile batteries becomes higher since demand for EN (European Norm) batteries is increasing
- Demand of replacement of lead-acid batteries for ISS (Idling Stop Systems) vehicles is increasing
- Fluctuation of price of lead often influences profit (Reflects to sales price constantly in new automobile batteries)

Systems or suppliers of business

Automotive Batteries (Japan)

<Group companies>



Purpose	Suppliers
New automobile	Japanese car manufacturers
Replacement	Agencies (Electrical stores), car retail stores, car dealers and oil distributors

Strategy

- Increasing market share of new automobile batteries enable to enhance profit by replacement batteries
- Expand ratio of high-value added batteries for ISS vehicles



Overview of Automotive Batteries (Overseas)



Outline of business

Manufacture and sell automotive or motorcycle lead-acid batteries overseas

*Including industrial batteries



No.2 world share
(Automotive batteries)
No.1 world share
(Motorcycle batteries)



Feature of business

- Net sales in Asia occupies about 60% of the world and especially South East Asia has high market share. The rest of global net sales (about 40%) occupies Europe, United States and Australia etc.
- Replacement batteries are popular for both automotive and motorcycle (In China, new automobile batteries are popular)
- Basically, produce and consume locally so impact of exchange is less
- Sales of industrial lead-acid batteries is included (Backup batteries in Europe occupies most of them)

Main products by region and suppliers

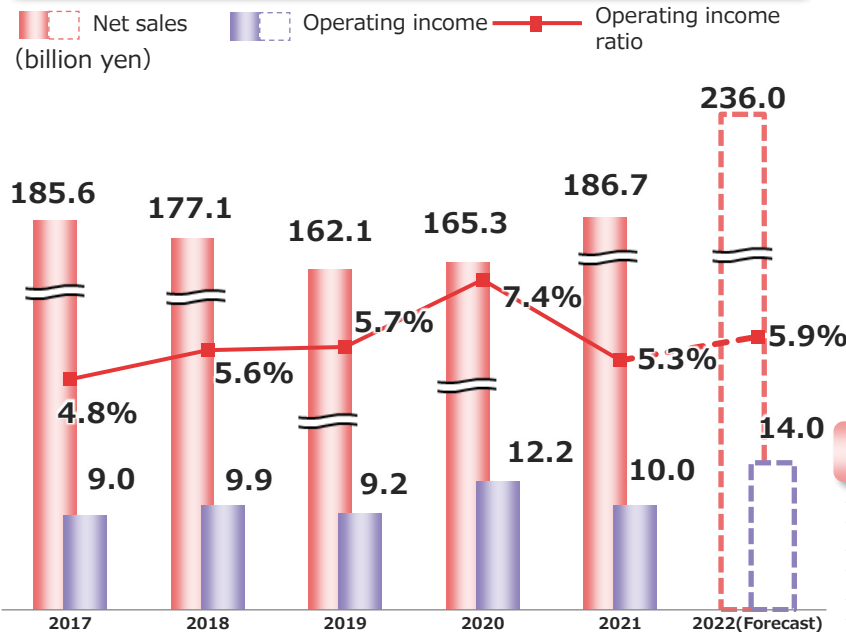
Region	Type	Automotive	Motorcycle	Industrial	Suppliers
ASEAN	New	■	■	■	New automotive : Japanese car manufacturers (mainly) Replacement : Agency etc. *Depends on countries or region
	Replace	■	■	■	
China	New	■	■	■	
	Replace	■	■	■	
United States	New	●	■	—	
	Replace	●	■	—	
Europe	New	●	●	■ (For backup)	
	Replace	■	●	■ (For backup)	
Australia	New	■	—	●	
	Replace	■	●	●	

※ ■ : Region doing both manufacture and sales, ● : Region doing only sales
 ※ Red : Main business, Blue : Semi-main business, Black : Not main business

Strategy

- High share : Raise income ratio by new products or production systems
- Low share : Increase sales by various line-up or building sales systems
- Strategic expansion to undeveloped area by utilizing current networks

Net sales, Operating income and ratio





Overview of Industrial Batteries and Power Supplies



Outline of business

Manufacture and sell electric backup batteries or power supplies of infrastructure, lead-acid batteries for forklifts, lighting equipment



No.1 share in Japan



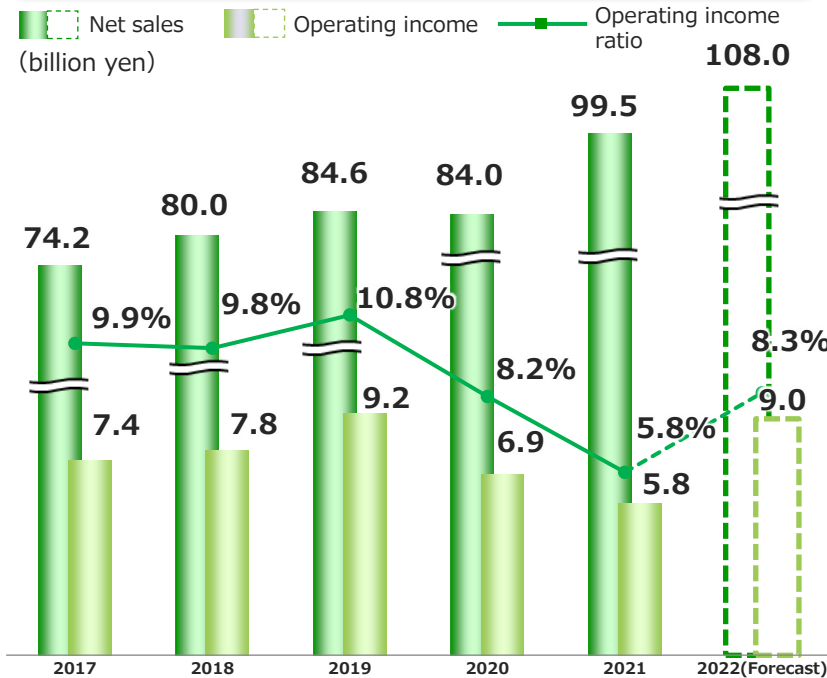
(For backup power supplies and forklifts)



Feature of business

- High market share in lead-acid backup batteries for infrastructure
- Backup batteries have high operating income ratio because we have build-to-order manufacturing systems through design and manufacture to construction and maintenance
- Net sales and operating income concentrate on 4Q(January to March) because batteries for governments occupy a lot of this segment
- Batteries for forklifts increase due to transition from engine types
- In May 2021, acquire infrastructure Business from Sanken Electric Co., Ltd.

Net sales, Operating income and ratio



Main products and suppliers

Purpose	Type	Suppliers	
For backup	Lead	Railway companies, electric companies, governments, telecommunication centers, etc. *There are some cases we supply through retail stores, electric or communication equipment manufacturers, etc.	
	Lithium		
	Power supplies		
For renewable energy	Lithium	Peak shift / Peak cut ESS for Solar/Wind power	
For forklifts	Lead	Forklift using batteries, electric wheelchairs, etc.	
Countries/Region		For backup	For forklifts
Thailand		—	●
China		—	●
United States		●	—

Strategy

- Expand sales of high-value added products or services utilizing IoT or DX
- Expand sales of lithium-ion batteries for renewable energy business
- Expand overseas business by expanding local production for local consumption-type business

Overview of Automotive Lithium-ion Batteries



Outline of business

Manufacture and sell lithium-ion batteries for eco-friendly cars in Japan or overseas, manufacture industrial lithium-ion batteries



Adopted eco-friendly cars made in **Japanese popular car manufacturers**



Feature of business

- Needs of performance of batteries are different from each purpose : for hybrid electric vehicles(HEVs), electric vehicles (EVs), plug-in hybrid electric vehicles(PHEVs) (for HEVs : high input/output, for EVs · PHEVs : high density energy)
- In Europe, region with environmental high awareness and lead regulation, supply of 12V LiB (for starting) has started
- Lithium-ion batteries are only for new vehicles, not for replacement because of their long lives
- Batteries for EVs and PHEVs have intense competition with large capitals
- Construct BEC 2nd plant for increase of demand of HEVs and the production capacity will expand in FY2023, more than double of the capacity in FY2019

Systems or suppliers of business

Automotive Lithium-ion Batteries

<Group companies>

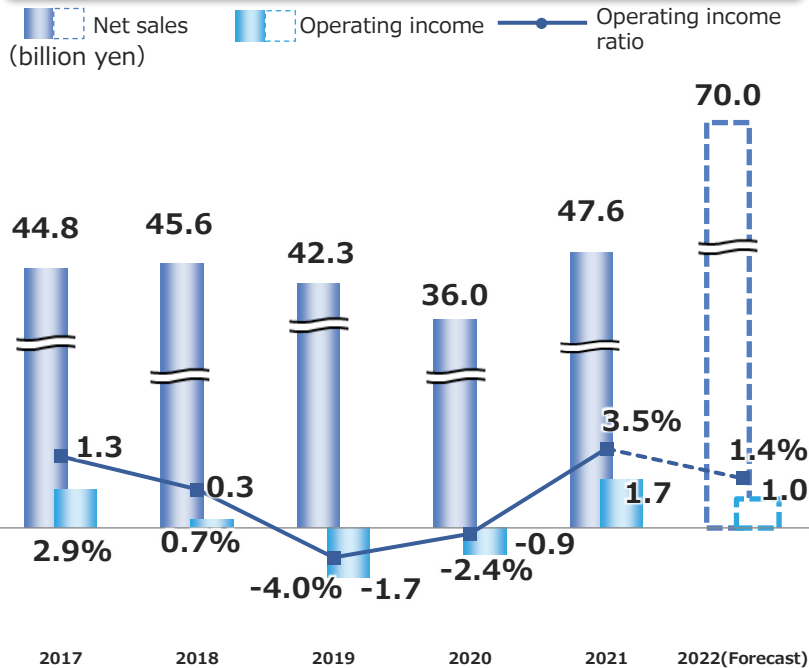
Blue Energy Co., Ltd.(BEC)	Joint venture company(GS Yuasa 51%, Honda Motor Co., Ltd.49% capital ratio)
Lithium Energy Japan(LEJ)	Joint venture company(GS Yuasa 51%, Mitsubishi Corporation 46%, Mitsubishi Motors Corporation 3% capital ratio)
GS Yuasa Hungary(GYHU)	GS Yuasa 100% capital ratio

Company	Purpose	Suppliers
BEC	For HEVs	Honda Motor Co., Ltd. · Toyota Motor Co., Ltd.
	For EVs · PHEVs	Mitsubishi Motors Corporation
LEJ	For industrial	Internal Sales(GS Yuasa Industrial Batteries and Power Supplies Division)
GYHU	For starting(12V)	Car manufacturers in Europe

Strategy

- Promote use for HEVs, 12V(Starting, auxiliary) and expand industrial
- Expand R&D investment resources for full-scale entry into EVs market

Net sales, Operating income and ratio



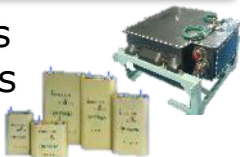


Overview of Specialized Batteries and Others



Outline of business

Manufacture and sell batteries for special applications such as batteries for ISS, aircrafts, submarines or satellites/
Corporate expenses



Adopted to extreme environments



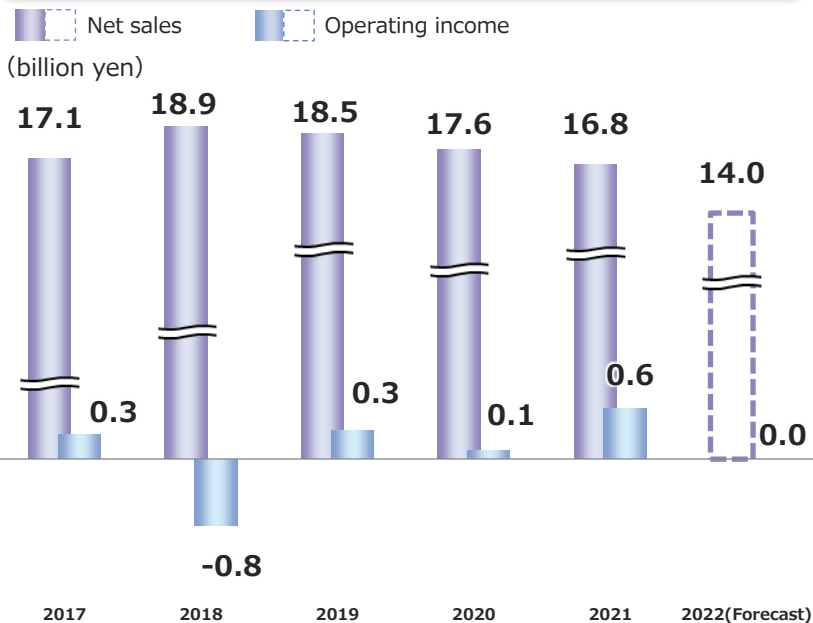
**from deep sea
to outer space**



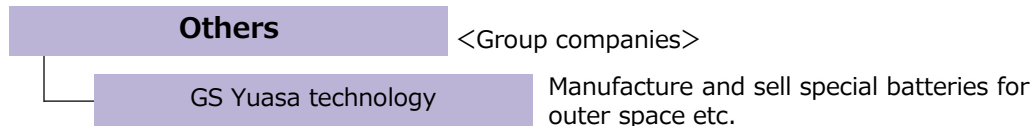
Feature of business

- Batteries are used in special environmental fields such as space, aircraft or deep sea so high performance and high quality products are needed
- We have various types of batteries : high density lead-acid or lithium-ion batteries, thermal batteries, high density primary lithium-ion batteries or sea batteries and so on
- Performance includes corporate expenses(labor costs, research and development costs and capital investment costs) so often have loss of this segment

Net sales, Operating income and ratio



Systems or suppliers of business



Strategy

- Stable supply and improvement of performance of lithium-ion batteries for submarines
- Increase trust and durability of lithium-ion batteries for aircrafts and satellites



Development of All-solid-state Batteries

Develop **new sulfide solid electrolytes** in GS Yuasa's unique research using computational chemistry methods

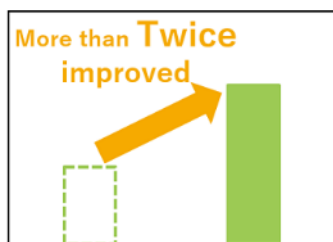
Expected to improve performance or reduce production cost and **make significant progress towards commercialization of all-solid-state batteries**

【Technical Issue toward Practical Use】

- ① Improve ionic conductivity of solid electrolyte
- ② Improve water resistance of sulfide solid electrolyte
- ③ Reduce interfacial resistance between solid electrolyte and active material
- ④ Improve electric potential resistance of solid electrolyte

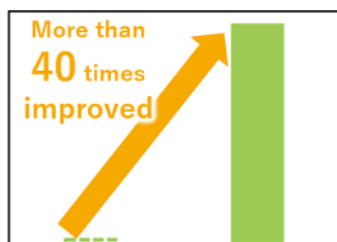
Greatly improved thanks to the development

< Ionic conductivity (25°C) >



Conventional product Developed product

< Index of water resistance >



Conventional product Developed product

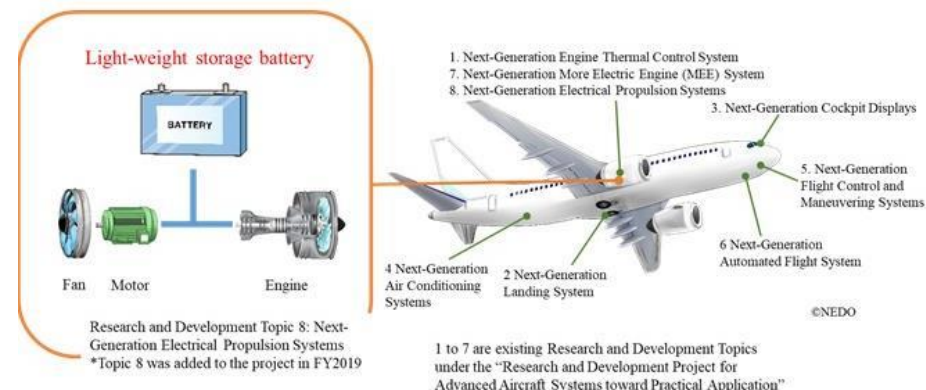
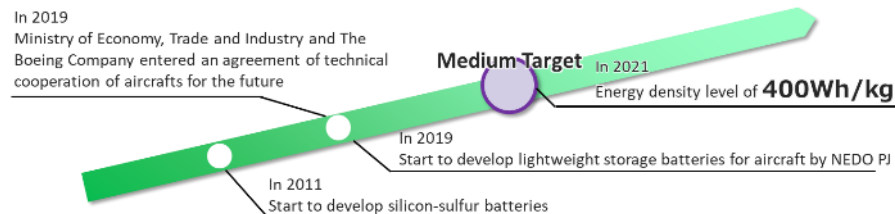
GS Yuasa aim of **commercializing all-solid-state batteries** starting with **specialized batteries** before the end of the 2020s

Progress of NEDO's Project for Aircrafts

In Next-Generation Electrical Propulsion Systems component of the "Research and Development Project for Advanced Aircraft Systems toward Practical Application"*, GS Yuasa **has successfully completed verification testing of a 400Wh/kg-class lithium-sulfur battery**, one of GS Yuasa's interim targets in its R&D work on lightweight storage batteries for aircraft



※The purpose of this project by New Energy and Industrial Technology Development Organization (NEDO) is to produce the kind of lightweight storage batteries needed for next-generation aircraft. The project comprises eight R&D topics.



3. ESG initiatives



ESG initiatives : Environments



Mid-term Environmental Goal

*Scope: 7 plants in Japan and 20 overseas group companies

Long-term Environmental Goal GY 2030 Long-Term Greenhouse Gas Target



CO₂ emissions

Target(FY2022)
Compared to FY2018
6.0% or more reduction

Result(FY2020)
Compared to FY2018
5.9% reduction



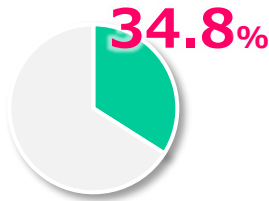
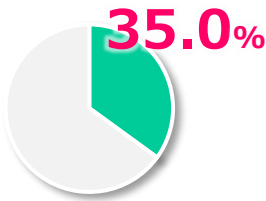
Water consumption

Compared to FY2018
8.0% or more reduction

Compared to FY2018
9.1% reduction



Percentage of environmentally considered products in total sales of all products



<Examples of environmentally considered products of GS Yuasa>



Batteries for ISS vehicles

Improve gas mileage by allowing the engine to stop instead of idling to reduce fuel consumption



Storage battery system

A system to effectively utilize renewable energy

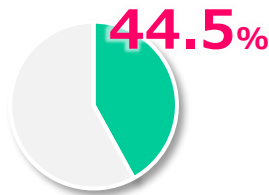
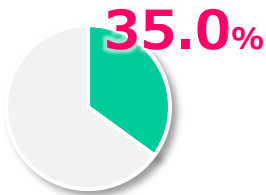


Automotive lithium-ion batteries

Batteries for electric vehicles that contribute significantly to reducing greenhouse gases

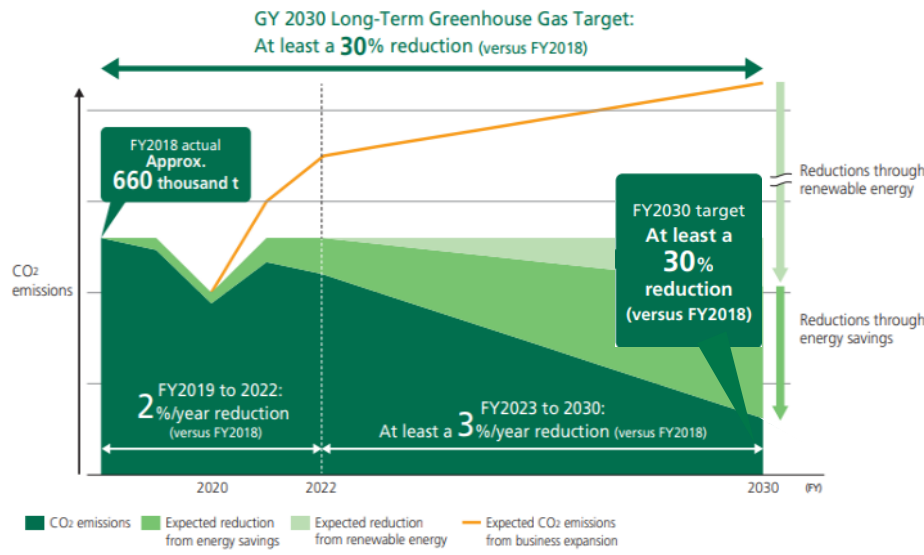


Ratio of recycled lead used as lead raw materials in lead-acid batteries



Target	Reduce FY2030 CO ₂ emissions by at least 30 %
Base Year	FY2018
Period	FY2019 to 2030
Rate of reduction	FY2019 to 2022 : 6 %
	FY2023 to 2030 : At least 24 %

<Road map for reducing CO₂ emissions>



Note: Emissions fell in fiscal 2020 due to the impact of the COVID-19 pandemic






Initiatives of diversity

(Only in Japan)

■ Promoting women's roles

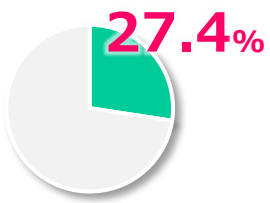
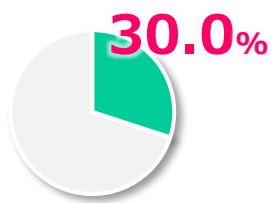
Action plan promoting women's roles (April 1, 2019 to March 31, 2022)

Target 1 Ratio of women New graduates recruited for career-track positions 30% or more 	Target 2 Encourage male employees to participate in childcare 	Target 3 Raise the maximum limit for taking half- day paid leave 
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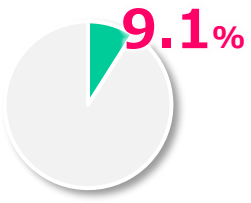
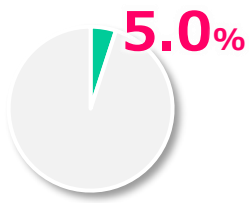
Target(FY2024)

Result(FY2020)

 Ratio of women among new graduates recruited for career-track positions



 Men's rate of taking childcare leave



GS Yuasa has received certification of "Platinum Kurumin" in June, 2020 through certification of "Kurumin" for three years



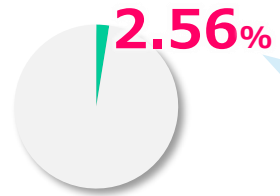
[About Platinum Kurumin]
 A system that allows you to receive special certification from the Minister of Health, Labor and Welfare in Japan as a company that carries out high-level efforts for child-rearing support.

■ Employment rate of people with disabilities

Result(FY2020)

 Employment rate of people with disabilities*

※As of 1st April, 2021



Exceed the legally mandated employment rate (2.3%)

GS Yuasa International Ltd. promote the employment of people with disabilities and offers a wide range of opportunities to people with disabilities, including in a company certified as a special subsidiary*.



Interoffice mail Copying Laundry Scanning

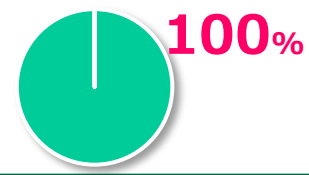
*Special subsidiary: A system based on the Disabled Persons Employment Promotion Law, under which, when a subsidiary is certified by Japan's Ministry of Health, Labor and Welfare as giving special consideration to the employment of people with disabilities, it can be regarded as one of the parent company's business establishments when calculating the employment rate of people with disabilities.

CSR procurement



Achievement ratio of supplier CSR issues improvement plan (global)

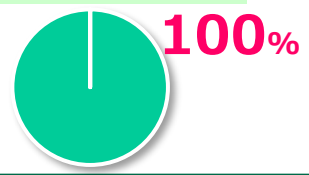
Result(FY2020)



Conflict mineral* survey implementation ratio (global)

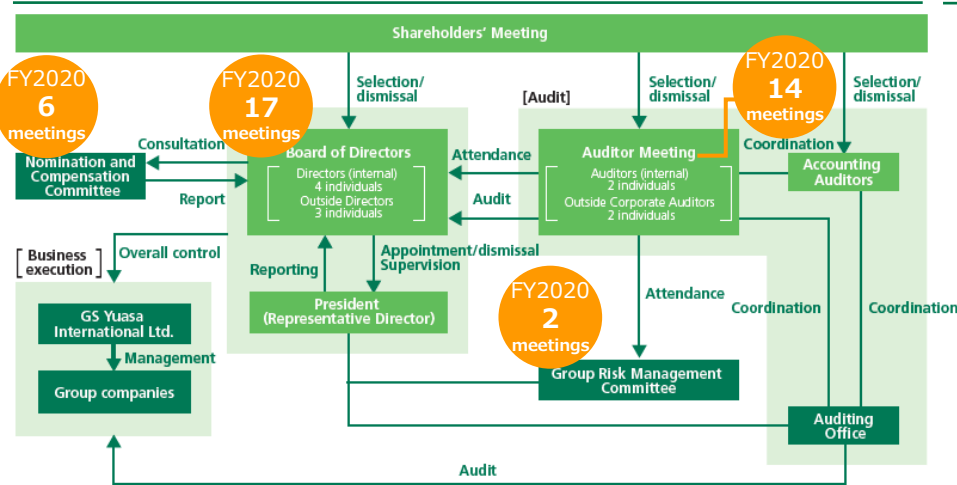
*Minerals that are extracted in conflict regions and provide financial resources to armed groups.

Result(FY2020)





Corporate Governance structure (FY2021)



Efforts to strengthen Corporate Governance

- Implement of **training for executives** for fostering of next-generation management

<Theme of training in FY2020>

- ROIC Management
- Competition law



- **Change of independent auditor** since the previous auditor had been in the post continuously for many years

- Strengthen monitoring system due to increase number of **outside directors** (increase **two to three**)

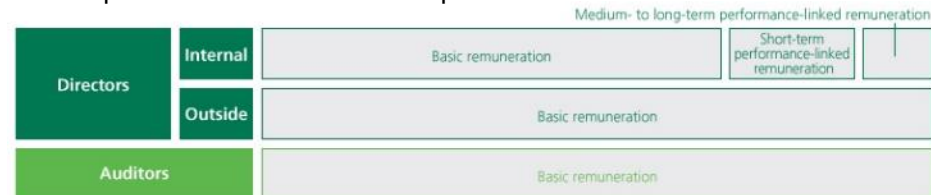
- Appoint **female outside director** and enhance diversity

Remuneration of Directors

- Director's remuneration : Consists of a fixed basic remuneration, a performance-linked annual bonus as a short-term incentive, and a performance-linked stock remuneration scheme as a medium- to long-term incentive

- Auditor's remuneration : In view of their role and independence, auditors receive only the fixed basic remuneration

<Composition of GS Yuasa Corporation's director remuneration>



<Skills matrix of directors and auditors (FY2020)>

Name	Position or responsibility	Knowledge and experience expected by GS Yuasa							
		Corporate management	Financial accounting	Legal affairs/ Compliance	IT	International affairs	Sales	Manufacturing	Technology
Osamu Murao	President Chief executive officer (CEO)	●		●				●	●
Toshiyuki Nakagawa	Vice President Chief financial officer (CFO)	●	●	●	●				
Masahiro Shibutani	Managing Director	●	●			●		●	
Kazuhiro Fukuoka	Director	●			●	●		●	
Ikuo Otani	Director Outside Independent	●	●						
Takayoshi Matsunaga	Director Outside Independent	●			●	●		●	●
Yoshiko Nonogaki	Director Outside Independent	●			●	●		●	
Masayuki Murakami	Corporate Auditor (Full-time)	●	●	●				●	●
Akio Furukawa	Corporate Auditor (Full-time)	●				●		●	
Tsukasa Fujii	Corporate Auditor Outside Independent		●	●					
Akira Tsujiuchi	Corporate Auditor Outside Independent		●	●					

Q1. <Automotive Batteries> Please tell us the quantity ratio of new automotive batteries and replacement batteries.

A1. In Japan, the ratio is approximately 1:1 (It depends on fiscal year). In overseas, we don't disclose the ratio because it depends on region.

Q2. <Automotive Batteries> Is there possibility that lead-acid batteries will not be used due to electrification?

A2. Lead-acid battery is definitely installed one per one electric vehicle such as EV or HEV. The use is for memory backup of car navigation while parking. Another use is for auxiliary equipment such as applying small current for door opening and closing, and starting systems. We consider that lead-acid batteries will be used for starting systems because lithium-ion battery has extremely high voltage and it may be dangerous to stand by constantly.

Q3. <Automotive Batteries (Overseas)> Please tell us the sales ratio by region.

A3. Approximately ASEAN : 40%, China : 20%, Europe : 20%, North America : 10%, the rest : other region (It depends on fiscal year).

Q4. <Industrial Batteries and Power Supplies> Please tell us the composition of net sales by product type.

A4. Approximately the use for backup for telecommunications or social infrastructure equipment : 60%, for forklifts : 20%, overseas : 20%, lighting : several percent (It depends on fiscal year).

Q5. <Automotive Lithium-ion Batteries> Please tell us the strategy toward electrification from now on.

A5. During the fifth mid-term management plan, the last year is FY2022, we focus on the resource for lithium-ion batteries for HEVs. In Europe, sales of new gasoline vehicles will be prohibited by 2035, and in Japan, the policy of changing all sales of new automobiles to electric vehicles including HEVs is posted. In order to respond increase of global demand in the segment of batteries for EVs in 2030s, GS Yuasa will increase resource of research development and investment, and prepare for full-scale entry to the market.

Q6. <Automotive Lithium-ion Batteries> Please tell us sales or operating income of LEJ and BEC.

A6. LEJ : Sales was 21.9 billion yen and operating income was 0.4 billion yen, BEC : Sales was 21.9 billion yen and operating income was 2.3 billion yen (FY2020 result).

Q7. <Others> What is the policy of shareholders return?

A7. We recognize the most important issue of management is return to shareholders, therefore, our target of total return ratio including a share buyback pursuant remains more than 30%.

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.



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