

Investors' Guide 2022



GS Yuasa Corporation
(TSE : 6674)



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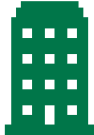
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1. About GS Yuasa



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 (FY2022)	517.7 billion yen
Number of employee	Group Consolidated 14,317 (as of March 31,2023)
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

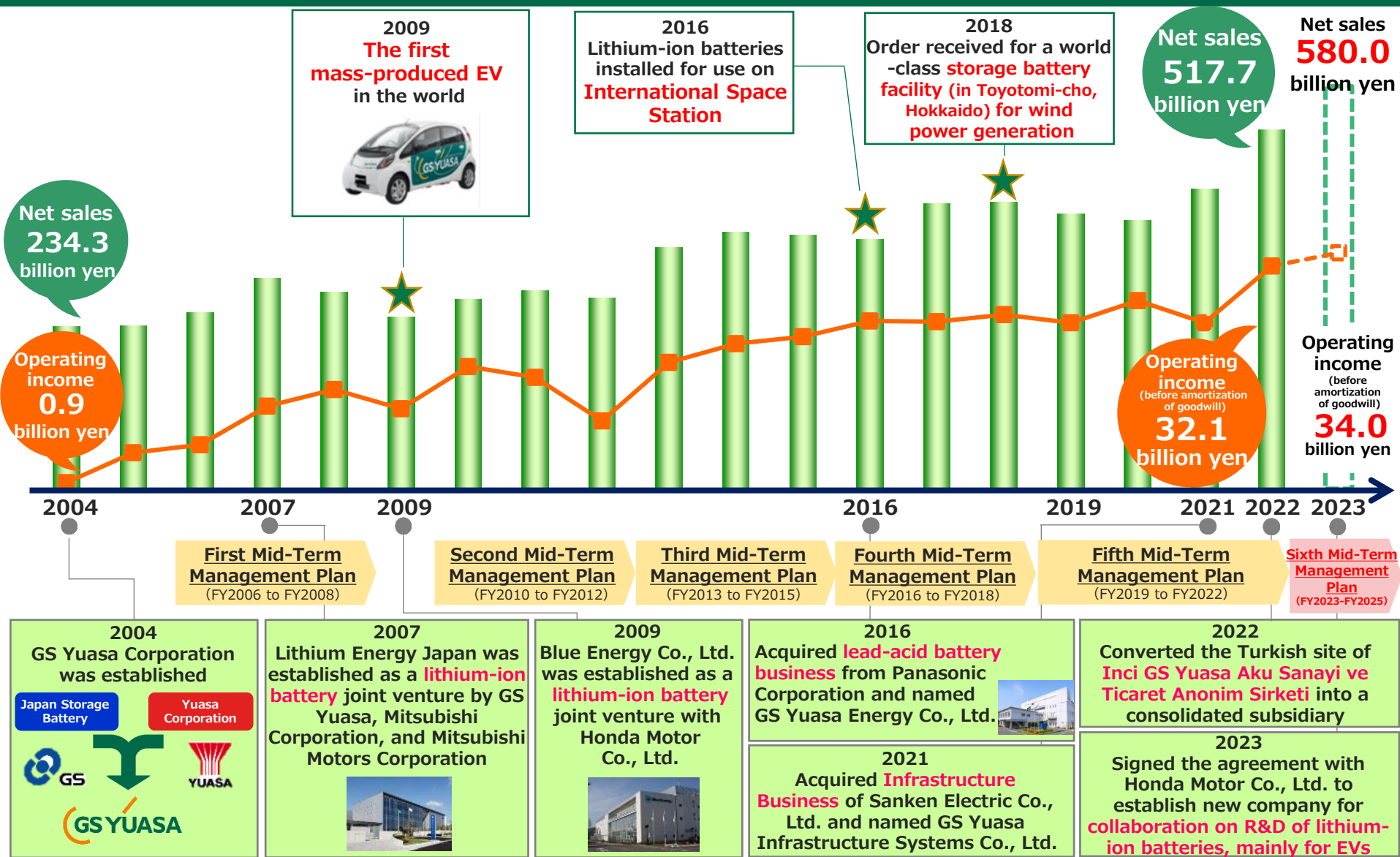
We are committed to people, society and the global environment, through innovation and growth of our employees and business entities.



Our Policy on Sustainability Management

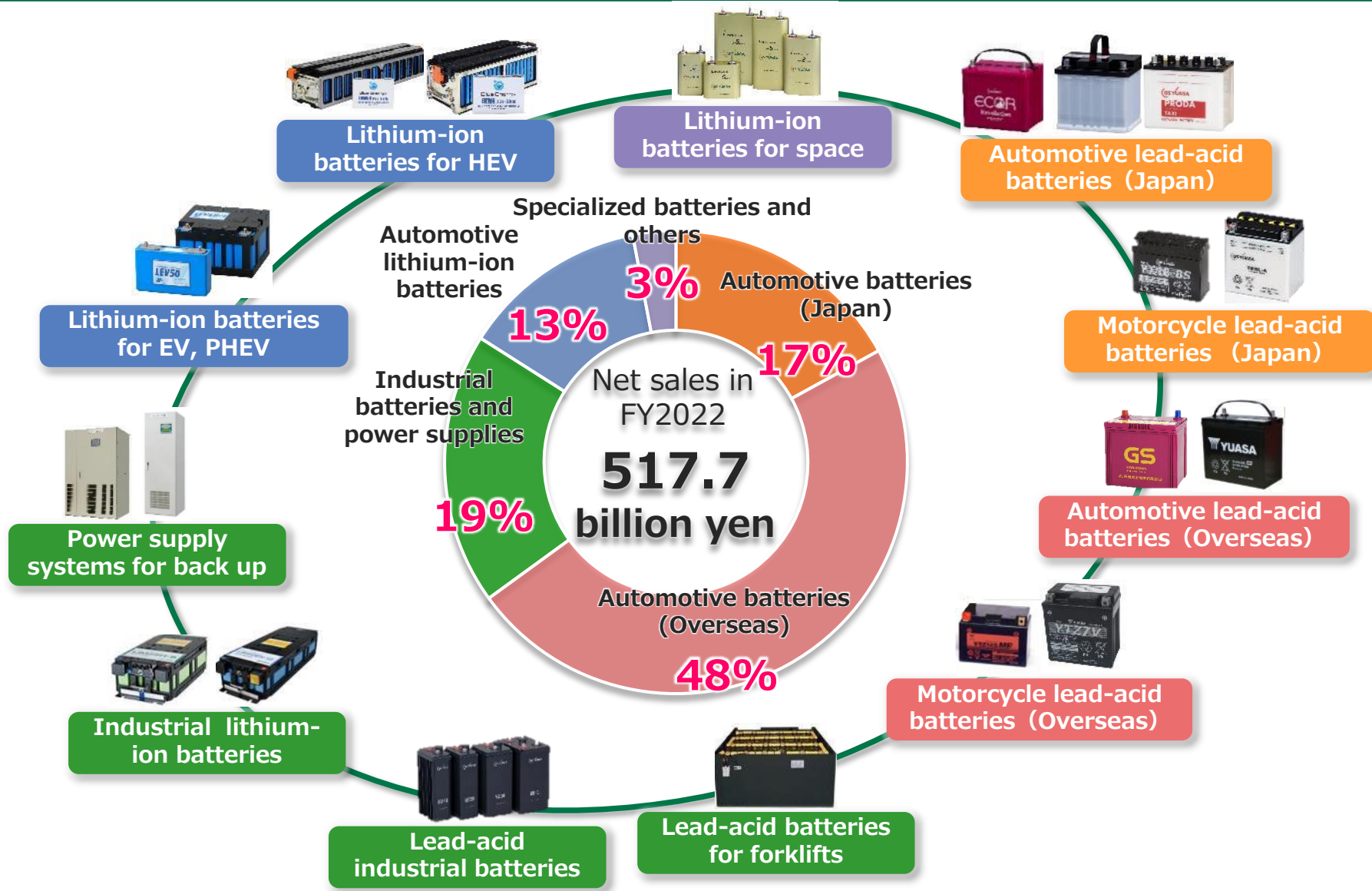
We are committed to utilizing advanced technologies developed in the field of stored energy solutions to deliver security and comfort to our customers around the globe, to make a real contribution to the global effort toward sustainability, and to grow corporate value.

History after Corporate Merger





Sales Composition by Business Segment and Main Products





Sales Composition by Region and List of Locations

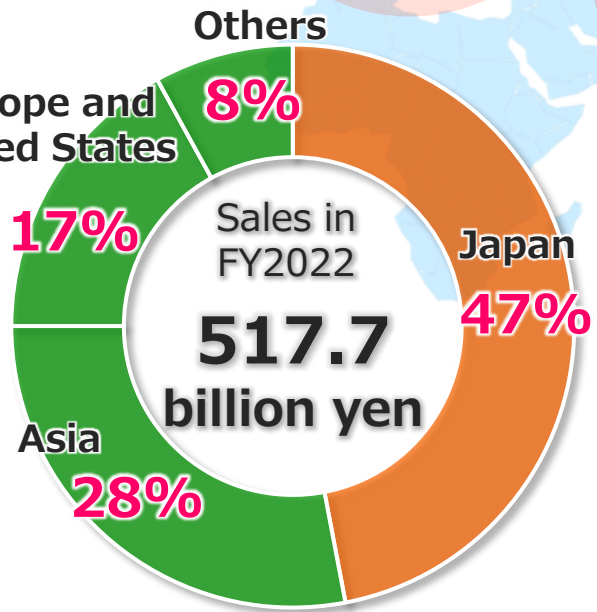


United States

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 37 sites mainly in Southeast Asia or China.
(as of March 2023)



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 boasts top-class domestic and global market share
- ✓ Customer base built by history of the company for over 100 years

3 Abundant Network

- ✓ More than 100 service locations throughout Japan
(Industrial batteries and power supplies business)
- ✓ More than 4,000 dealers throughout Japan offer optimal battery solutions
(Automotive batteries business)
- ✓ Global locations with a focus on Southeast Asia and China





Vision 2035 (Long Term Vision and Mid-Term Management Plan)



Vision of GS Yuasa in 2035

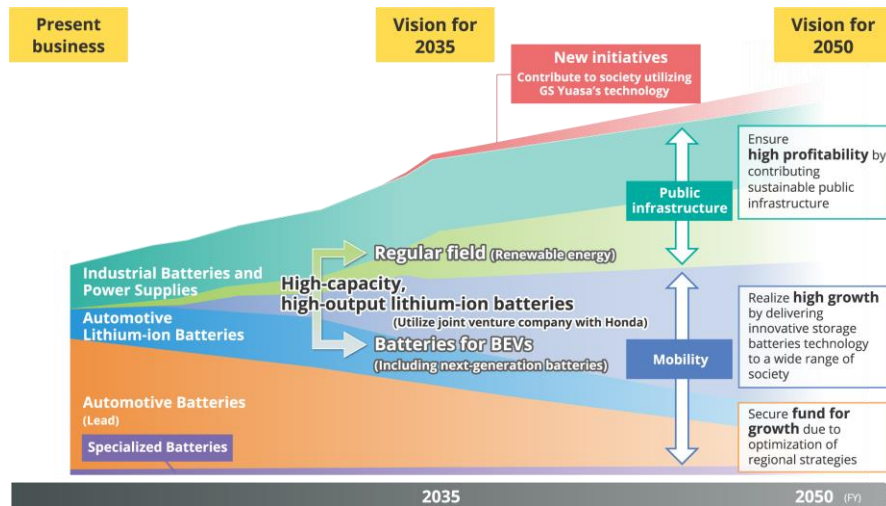
Based on the "Four Re's" formula, we strive for innovation in energy technology, endeavor to address the challenges facing society through the development of mobility and other public infrastructures, and seek to create comfortable living environments and play our part in the global effort toward sustainability.

Vision 2035

- Reborn** A century on and still inspired anew every day by the GS Yuasa founding spirit.
- Renewable** Making a genuine contribution to carbon neutrality.
- Reliable** Committed to technical innovation and delivering solid, reliable energy.
- Respect** Earning the respect of the world through solid action toward achieving the SDGs.

Image of growth toward achieving Vision 2035

Focusing on "Mobility" and "Public Infrastructure", we will contribute to solving social issues with our technological capabilities and R&D results.



Sixth Mid-Term Management Plan (FY2023-2025)

Policy

Positioning this period as one for laying the foundation for reform to realize the vision envisioned in Vision 2035, we will implement a variety of measures to reform our business structure.

Measures

- 1 Development of batteries for BEVs**
- 2 Reinforcement of earning capacity in existing business**
- 3 DX / new business**

Net Sales	610.0 billion yen or more
Operating Income	41.0 billion yen or more
ROE (Return on Equity)	8.0 % or more
ROIC (Return on Invested Capital)	10.0 % or more
Total Return Ratio	30.0 % or more

Notes: 1. The above indicators are based on income before the amortization of goodwill (operating income and net income).
 2. ROIC is calculated as invested capital (fixed assets (excluding goodwill, etc.) + working capital) / operating income before amortization of goodwill, etc. Invested capital is the average of the beginning and end of the period.

2. About Our Business

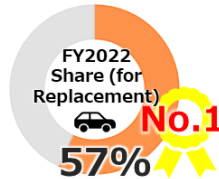
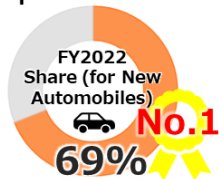
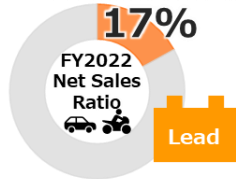


Overview of Automotive Batteries (Japan)

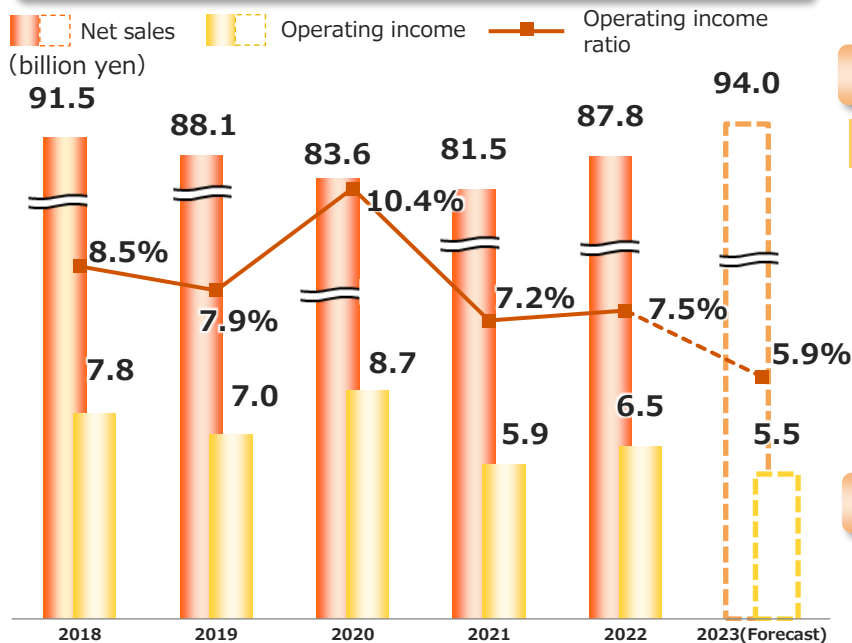


Outline of business

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



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.

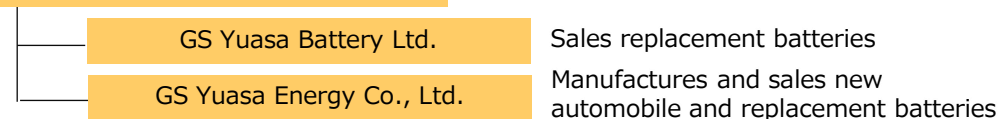
Feature of business

- Acquired lead-acid battery business from Panasonic Corporation (Current GS Yuasa Energy Co., Ltd.)
- There are two types of batteries, one for new vehicles and the other for replacement, and profit margins tend to be higher for replacement
- Demand for replacement batteries is highest from October to December and when the weather is extremely hot in summer or cold in winter
- Demand for EN (European Norm) batteries for new automobiles and replacement is increasing
- Demand of replacement of lead-acid batteries for ISS (Idling Stop Systems) vehicles is increasing
- Fluctuations in lead prices affects profit (Reflects to sales price constantly in new automobile batteries)

Systems or suppliers of business

Automotive Batteries (Japan)

<Group companies>



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

Strategy

- Maintain high market share for new automobiles and replacement
- Improve profit ratio due to optimal price revision such as raw material prices



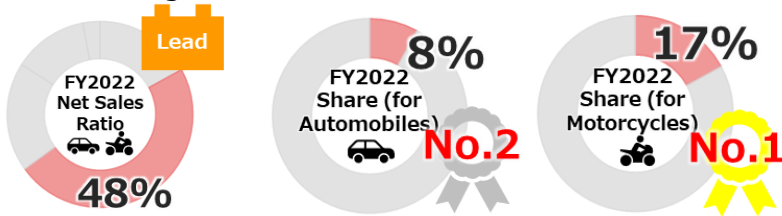
Overview of Automotive Batteries (Overseas)



Outline of business

Manufacture and sell automotive or motorcycle lead-acid batteries overseas

*Including industrial batteries



Feature of business

- Net sales in Asia occupies approx. 50% of the world and especially Southeast Asia has high market share. Net sales in Europe occupies approx. 30%, North America occupies approx. 10% and the rest are other countries
- High ratio of both automotive and motorcycle replacement batteries (In China, high ratio of new automotive batteries)
- Impact of exchange is minimal due to local production and consumption
- Partial sales of industrial batteries (lead) is included (Backup batteries in Europe etc.)
- Converted the Turkish site into a consolidated subsidiary in May 2022

Main products by region and suppliers

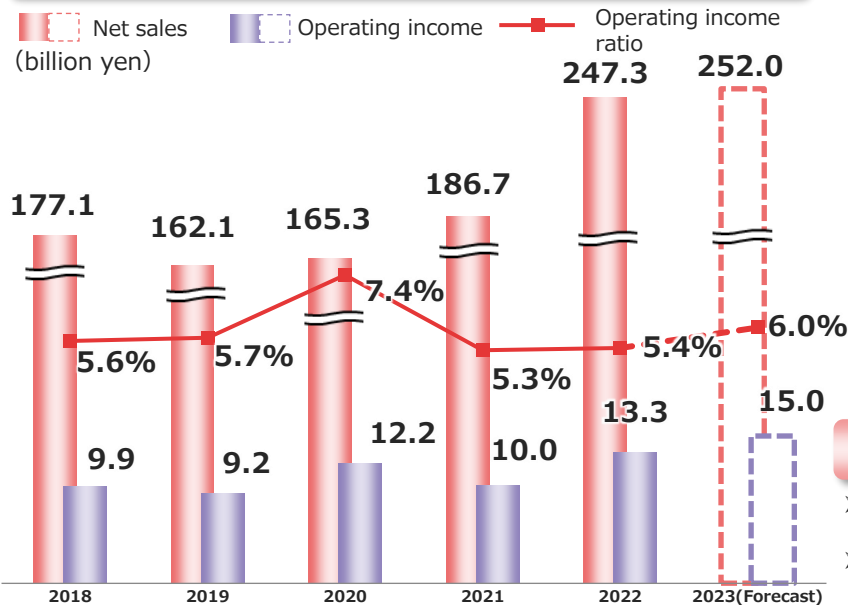
Region	Type	Automotive	Motorcycle	Industrial	Suppliers	
ASEAN	New	■	■	■	For New automobiles : Japanese car manufacturers (mainly)	
	Replace	■	■	■		
China	New	■	■	■		
	Replace	■	■	■		
America	New	●	■	—		For Replacement : Agency etc. *Depends on countries or region
	Replace	●	■	—		
Europe	New	●	●	■ (For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

- Southeast Asia : Establish an optimal production system to maintain a high market share and improve profit margins
- Turkey : Stable supply to Europe, strengthen sales in the Middle and Near East and North Africa
- China : Promote fundamental review of business

Net sales, Operating income and ratio

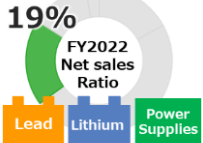


Note: Operating income is operating income before amortization of goodwill and Op. income ratio is Op. income ratio before amortization of goodwill.



Outline of business

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

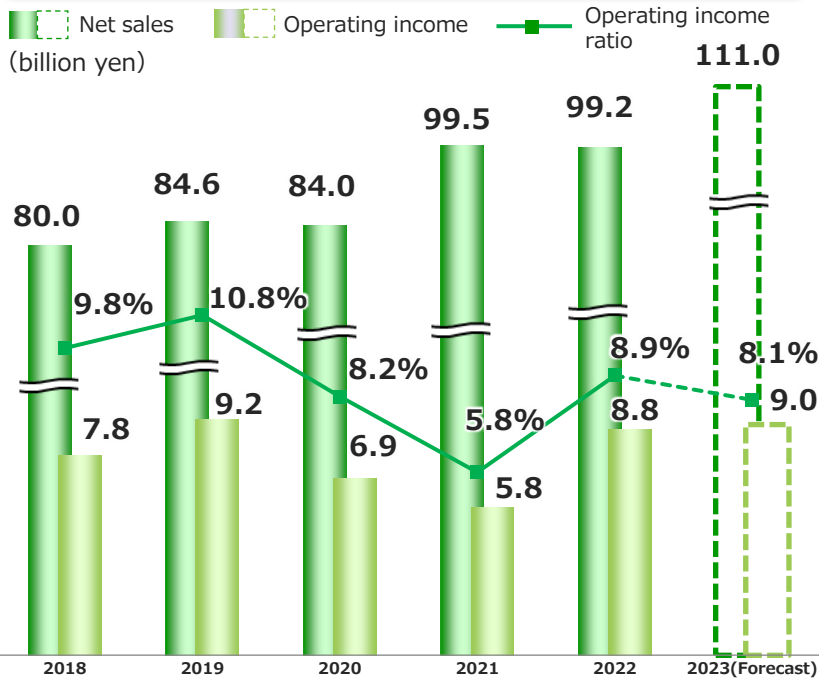


No.1 share in Japan
(Lead-acid batteries for backup power supplies and forklifts)

Feature of business

- High market share in lead-acid backup batteries for public infrastructure
- High operating margin for backup applications because of one-stop service from design and manufacturing to construction and maintenance on a build-to-order basis
- Sales and profits tend to be concentrated in the 4Q (January-March) due to the large number of sales to public agencies
- Batteries for forklifts increase due to transition from engine types
- Acquired Infrastructure Business from Sanken Electric Co., Ltd. in May 2021

Net sales, Operating income and ratio



Main products and suppliers

Purpose	Type	Suppliers
Emergency Field (For backup)	Lead-acid	Railway companies, electric companies, government administration office, telecommunication centers, etc. <small>*There are some cases we supply through retail stores, electric or communication equipment manufacturers, etc.</small>
	Lithium	
	Power supplies	
Regular Field (For renewable energy)	Lithium	
For forklifts	Lead-acid	Forklift manufacturers, retail stores, etc.
Countries/Region	For backup	For forklifts
Thailand	—	●
China	—	●
America	●	—

Strategy

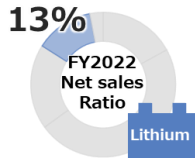
- Emergency field (Japan) : Expand remote monitoring services and improve profitability
- Regular field : Respond to growing demand for renewable energy and develop as a pillar of the business
- Emergency field (Overseas) : Enhance competitiveness by expanding product lineup

Overview of Automotive Lithium-ion Batteries



Outline of business

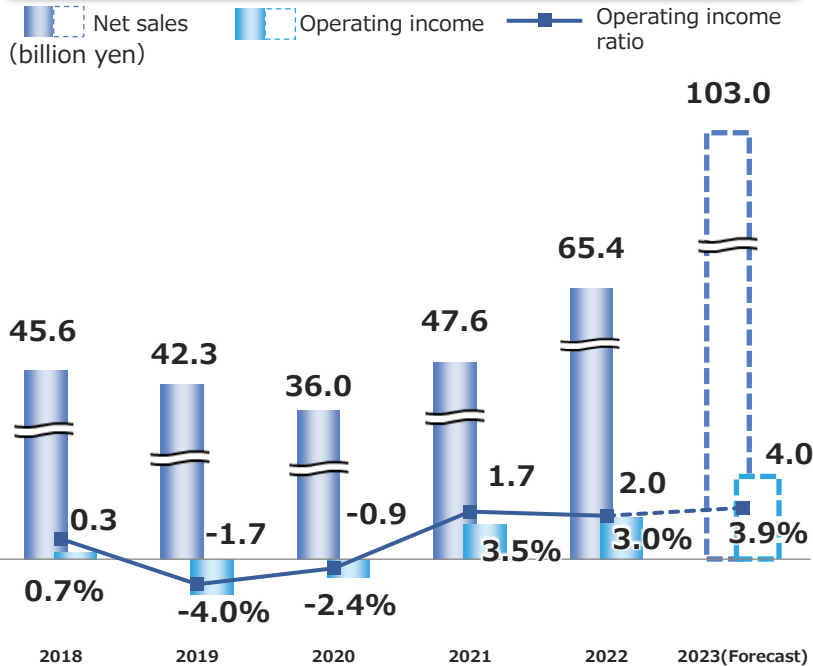
Manufacture and sell lithium-ion batteries for eco-friendly cars in Japan or overseas, manufacture industrial lithium-ion batteries



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



Net sales, Operating income and ratio



Feature of business

- Batteries for hybrid electric vehicles (HEVs) : high input and output performance is required, for electric vehicles (EVs), for plug-in hybrid electric vehicles (PHEVs) : high energy density is required
- Lithium-ion batteries are only for new vehicles, not for replacement because of their long lives
- BEC second plant started operation. Production capacity of batteries for HEVs will expand to 50 million cells / year (on second half of FY2022), 70 million cells / year (-FY2025)
- In April 2023, Honda and GS Yuasa signed the agreement to establish new joint venture company for collaboration on R&D of lithium-ion batteries, mainly for EVs

Systems or suppliers of business

Automotive Lithium-ion Batteries

<Group companies>

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

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

Strategy

- For HEVs : Respond to increased demand by expanding production capacity
- For PHEVs : Strengthen production system
- For BEVs : Strengthen development system, aim for production capacity target exceed 20 GWh/year (in FY2035)

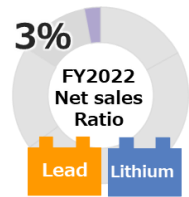


Overview of Specialized Batteries and Others



Outline of business

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



Adopted to extreme environments
from deep sea to outer space



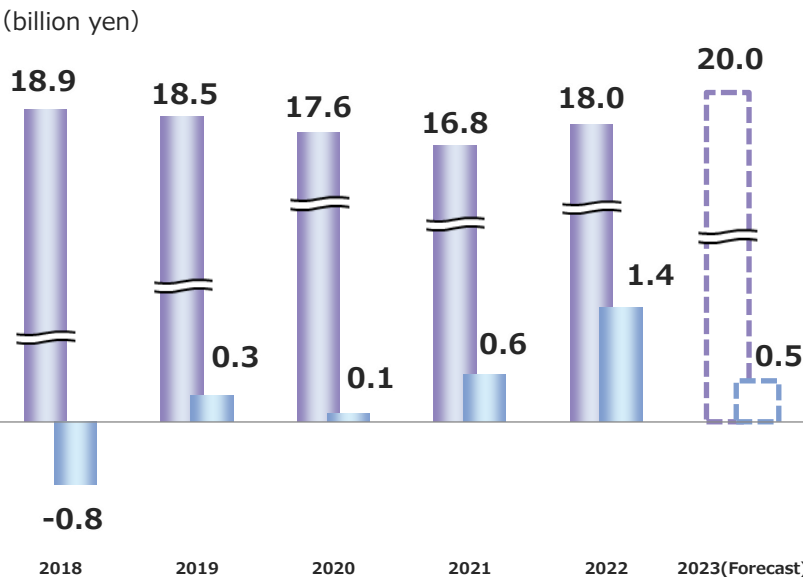
ISS (International Space Station)

Feature of business

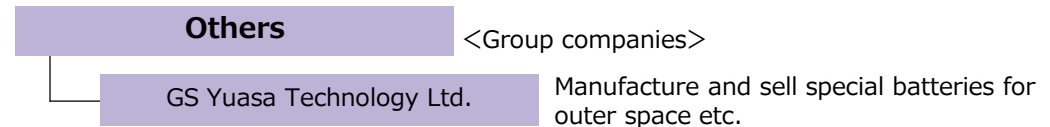
- Batteries are used in special environmental fields such as space, aircraft or deep sea therefore products with high performance and high quality are required
- We have various types of batteries : high density lead-acid or lithium-ion batteries, thermal batteries, high density primary lithium-ion batteries or sea batteries and others
- Segment loss may occur because the results include corporate expenses (labor cost, R&D cost, capital investment, etc.)

Net sales, Operating income and ratio

Net sales (billion yen) Operating income (billion yen)



Systems or suppliers of business



Strategy

- Capture demand and improved profitability due to the strengthening of the defense industry base
- For submarines : Develop next-generation lithium-ion batteries
- For aircrafts : Response to increasing demand
- For satellites : Expand sales



Research & Development -Initiatives for Next-Generation Batteries-



<Issues regarding current lithium-ion batteries>

Resource depletion

Energy density

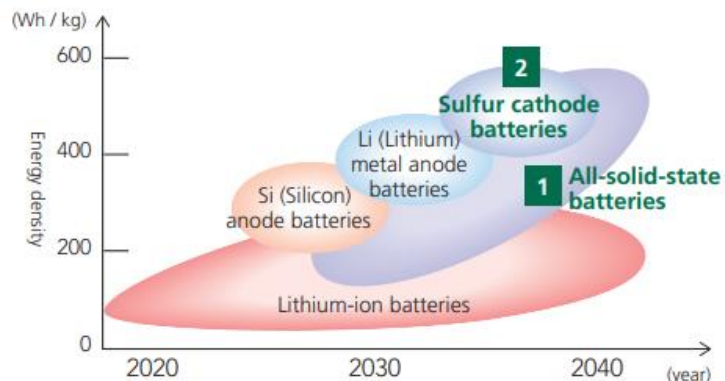
Lifespan

Safety

Current lithium-ion batteries have various issues :
Since rare metals such as cobalt and lithium are used as raw materials, there is a possibility that supply shortages will occur if demand rises sharply in the future; Since the electrolytes used in current lithium-ion batteries are flammable, flame-retardant or non-combustible electrolytes are being sought.

GS Yuasa's initiatives

<Road map for the development of next-generation batteries>



1 All-solid-state batteries

Improved **the sulfide solid electrolyte**, which is the key material for the commercialization of all-solid-state batteries, and have newly developed **a nitrogen-containing sulfide solid electrolyte**

- Reduce charging time
- Improve safety during manufacturing and in case of failure
- Reduce the interface resistance between the solid electrolyte and the active material

2 Sulfur cathode batteries

In NEDO's Advanced Aircraft System Commercialization Project, we have achieved success in demonstration of **400Wh / kg-class lithium-sulfur battery**

- High energy density
- Resolve supply chain problems
- Performance improvements in charge / discharge cycle lifetime

* ■ : Merits those can be expected, ■ : Issues

<Selected for Participation in NEDO Green Innovation Fund's Next-Generation Storage Battery Development Project>

On April 19, 2022, GS Yuasa was selected for the NEDO Green Innovation Fund's Next-Generation Storage Battery project*

[GS Yuasa's development targets for the project]

- ① Development of a solid electrolyte that combines high ionic conductivity with excellent water resistance
- ② Development of high-capacity positive electrodes with low cobalt content
- ③ Development of negative electrodes with high capacity and long-life performance
- ④ Development of cell design and manufacturing processes that facilitate mass production

Utilize funding and **accelerate the development and aim to commercialize all-solid-state batteries**

*Play a central role in Japan's efforts to achieve carbon neutrality. The aim of the fund is to provide long-term ongoing support for green innovation projects implemented by corporations, from the R&D and verification testing stages through to practical application, on the way to the achievement by Japan's public and private sectors of concrete and ambitious shared goals.

3. ESG Initiatives



ESG Initiatives <Environmental>



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(FY2021)
Compared to FY2018
8.1% reduction



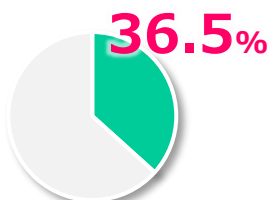
Water consumption

Compared to FY2018
8.0% or more reduction

Compared to FY2018
10.3% reduction



Percentage of environmentally considered products in total sales of all products



<Examples of environmentally considered products of GS Yuasa>



Lead-acid Batteries for ISS vehicles

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



Power conditioners

A system to effectively utilize renewable energy

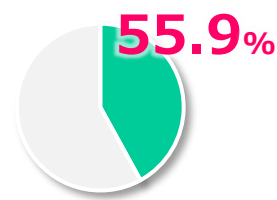
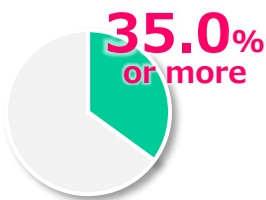


Lithium-ion batteries for HEVs/EVs · PHEVs

Batteries for electric vehicles that contribute significantly to reducing greenhouse gases



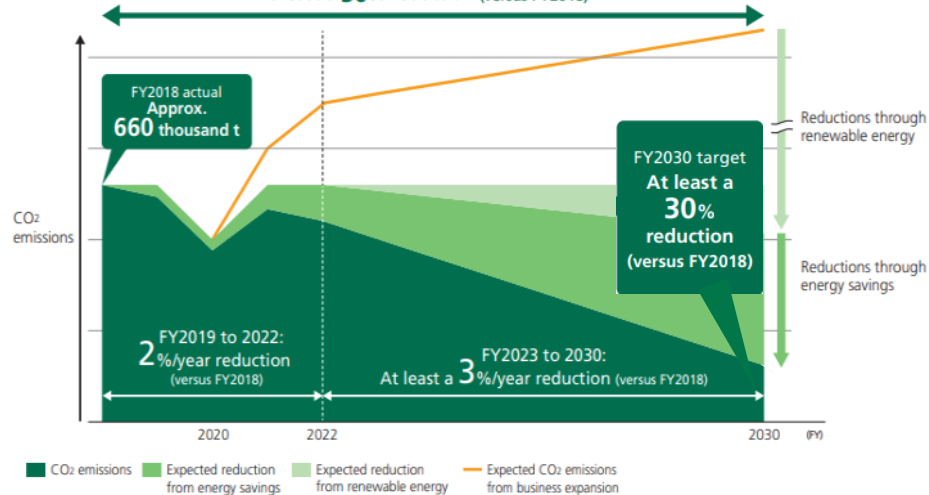
Ratio of recycled lead used as lead raw materials in lead-acid batteries



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>

GY 2030 Long-Term Greenhouse Gas Target:
At least a **30%** reduction (versus FY2018)



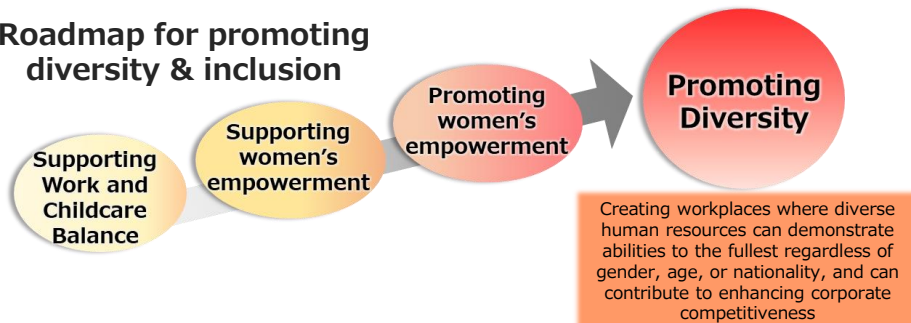
Note: Emissions fell in fiscal 2020 due to the impact of the COVID-19 pandemic



Initiatives of diversity

(Only in Japan)

Roadmap for promoting diversity & inclusion



First certified as a Nadeshiko Brand in fiscal 2021



【About Nadeshiko Brand】

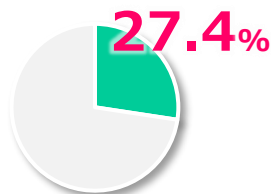
The aim is to promote investment in companies and accelerate corporate initiatives by introducing listed Japanese companies that excel in promoting women's empowerment as attractive stocks to investors who place importance on improving corporate value over the medium to long term.

■ Key indicator concerning the promoting women's empowerment

Target(FY2024)

Result(FY2021)

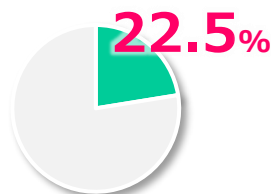
 Ratio of women among new graduates recruited for career-track positions



 Percentage of women among workers



 Men's rate of taking childcare leave

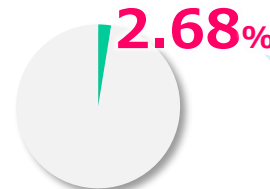


■ Employment rate of people with disabilities

Result(FY2021)



Employment rate of people with disabilities*



Exceed the legally mandated employment rate (2.3%)

*As of April 1st, 2022

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

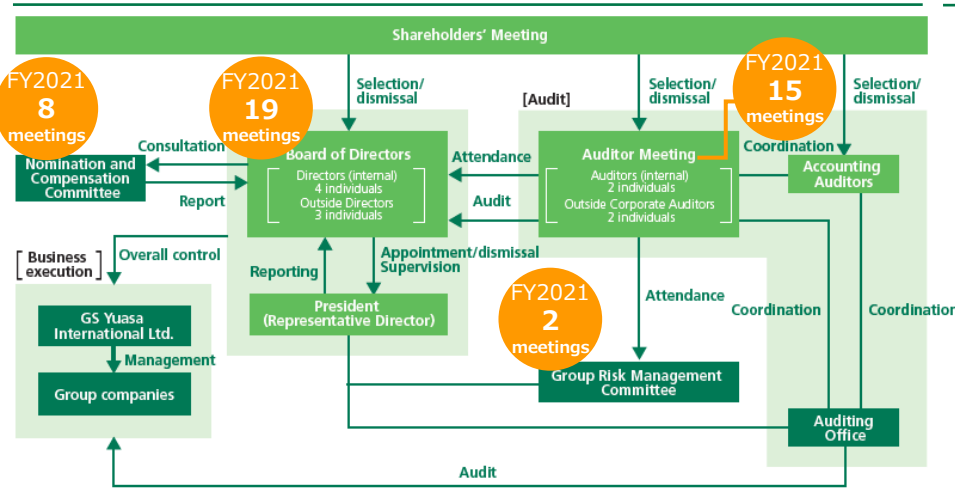


Scanning

*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.



Corporate Governance structure (FY2022)



<Skills matrix of directors and auditors>

Name	Position or responsibility	Knowledge and experience expected by GS Yuasa Corporation								Nomination and Compensation Committee
		Corporate / business management	Financial accounting	Legal affairs / Risk management	IT Digitalization	Global	Manufacturing Development	Marketing Sales	ESG	
Osamu Muraio	President Chief executive officer (CEO)	●		●				●	●	■
Masahiro Shibutani	Senior Managing Director	●	●			●		●		■
Kazuhiro Fukuoka	Director	●		●	●				●	
Hiroaki Matsushima	Director Chief financial officer (CFO)	●	●		●				●	
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		●	●					●	

Efforts to strengthen Corporate Governance

- Implement of **training for executives** for fostering of next-generation management
<Theme of training in FY2021> Sustainable management, TCFD, management analysis
- **Reinforcement of structures for reporting** by internal auditing divisions
- 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 :
auditors receive only the fixed basic remuneration

<Composition of GS Yuasa Corporation's director remuneration>

Category	Basic remuneration	Short-term performance-linked remuneration	Medium- to long-term performance-linked remuneration
Internal Directors	80%	10%	10%
Outside Directors	100%		
Corporate Auditors	100%		

*The figure is hypothetical with percentages calculated based on results for fiscal 2021 and may change due to variations in consolidated performance and other factors.



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%, Europe : 30%, China : 10%, 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 public infrastructure equipment : 50%, for forklifts : 20%, overseas : 30% (It depends on fiscal year).

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

A5. We predict that HEVs will be the mainstream of electrification through the mid-2030s, and that EVs will come into the mainstream after that. Going forward, we expect to expand our annual production capacity of lithium-ion batteries for HEVs to 70 million cells in FY2025 to steadily meet demand from new car manufacturers. Regarding lithium-ion batteries for BEVs, we establish joint venture company with Honda for conducting R&D on high-capacity, high-output lithium-ion batteries with the aim of strengthening R&D and establishing an efficient production system.

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

A6. LEJ : Sales was 25.3 billion yen and operating income was 1.3 billion yen, BEC : Sales was 31.4 billion yen and operating income was 3.3 billion yen (FY2021 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 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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