



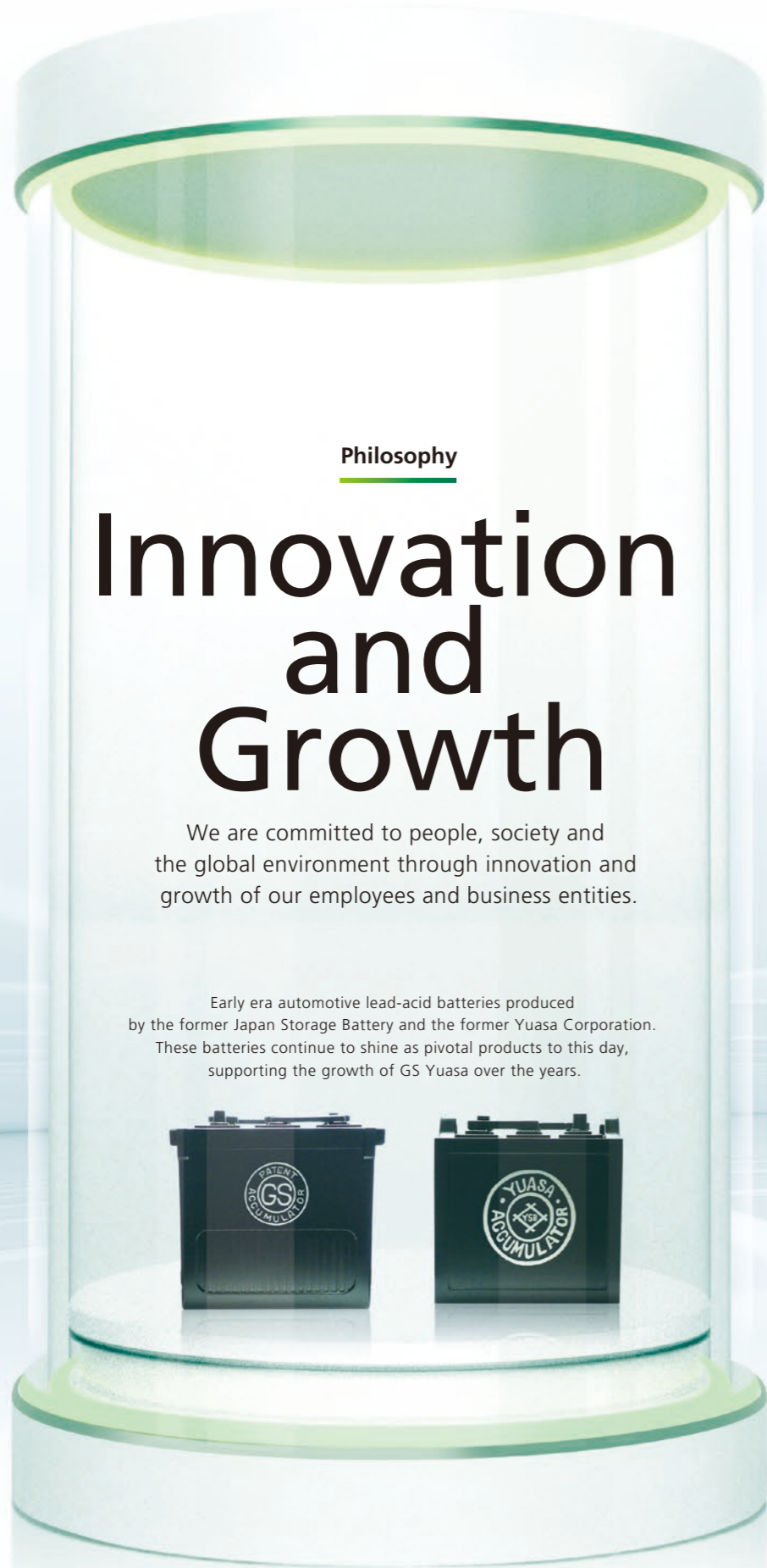
GS Yuasa Corporation
GS Yuasa Report 2019
For the fiscal year ended March 31, 2019



GS Yuasa Corporation

Head Office
1, Inobanba-cho, Nishinosho, Kisshoin, Minami-ku,
Kyoto 601-8520, Japan

English website: www.gs-yuasa.com/en



Philosophy

Innovation and Growth

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

Early era automotive lead-acid batteries produced by the former Japan Storage Battery and the former Yuasa Corporation. These batteries continue to shine as pivotal products to this day, supporting the growth of GS Yuasa over the years.



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.

Corporate Slogan

Creating the Future of Energy

The commitment instilled in this slogan:

We pledge to pioneer new modes of futuristic energy (storage batteries), engineered to address the constantly changing needs of the times.



Management Policy

1. GS Yuasa will become the “first call” company based on our “customer first” policy.
2. GS Yuasa considers quality and safety as most important, and supplies environmentally conscious products all over the world.
3. GS Yuasa will comply with all laws and operate using clear and fair management.

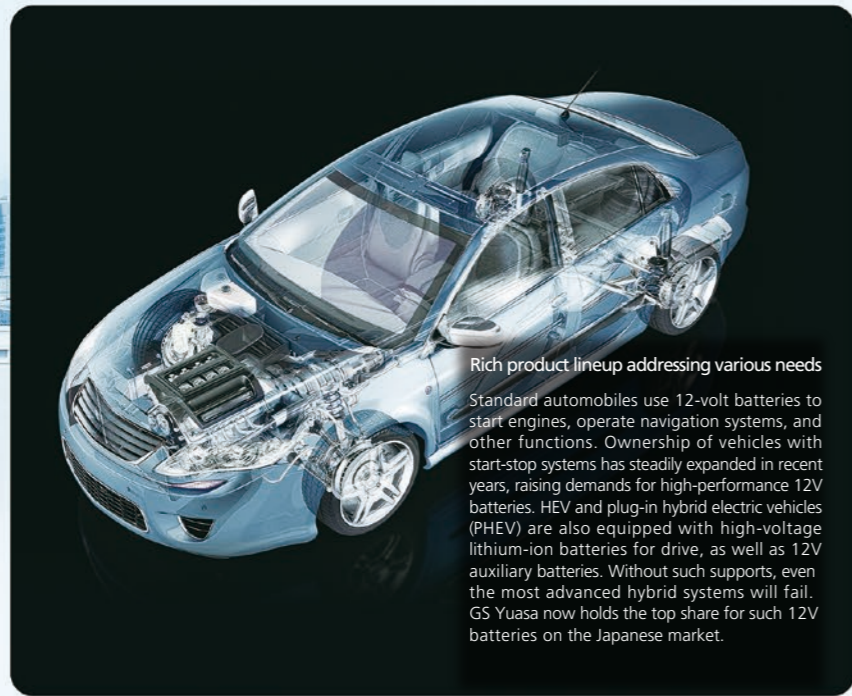
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Storage Battery Technology Supporting Global Transportation and Infrastructure

Not only Electric vehicles (EVs), but hybrid electric vehicles (HEVs) and gasoline-powered vehicles rely on batteries for lights, air conditioning, and other components, as well as vehicle startup. Batteries are critical in supporting rapid automotive diversification and performance.

The roles of batteries are also expanding to the functions of industrial vehicles such as electric trains and forklifts, and the evolution of power plants and other social infrastructure facilities.

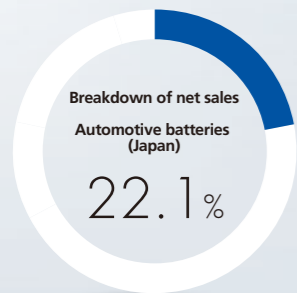


Rich product lineup addressing various needs
Standard automobiles use 12-volt batteries to start engines, operate navigation systems, and other functions. Ownership of vehicles with start-stop systems has steadily expanded in recent years, raising demands for high-performance 12V batteries. HEV and plug-in hybrid electric vehicles (PHEV) are also equipped with high-voltage lithium-ion batteries for drive, as well as 12V auxiliary batteries. Without such supports, even the most advanced hybrid systems will fail. GS Yuasa now holds the top share for such 12V batteries on the Japanese market.



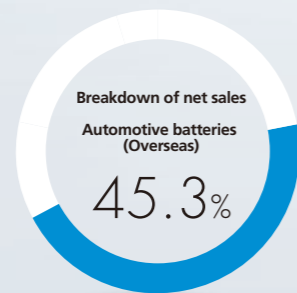
Automotive batteries (Japan)

We manufacture and market domestic automotive and motorcycle lead-acid batteries. Technology to reduce fuel consumption has made great strides in eco-friendly vehicles. We are developing high-performance, high-quality batteries for such vehicles and launching them in the market.



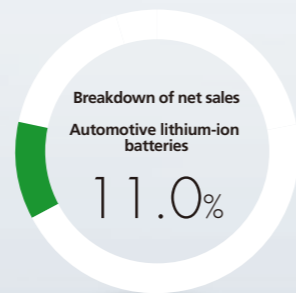
Automotive batteries (Overseas)

GS Yuasa has 37 overseas sites in 19 countries around the world, with an especially large presence in Southeast Asia (mainly in Thailand and Indonesia) and China. We use these sites to manufacture and market automotive and motorcycle lead-acid batteries.



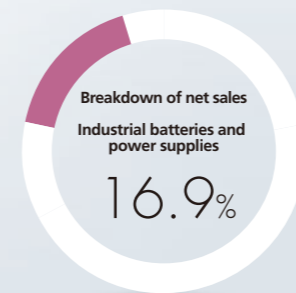
Automotive lithium-ion batteries

We manufacture and market automotive lithium-ion batteries for electric vehicles, hybrid electric vehicles, and plug-in hybrid electric vehicles.



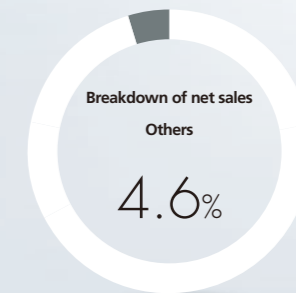
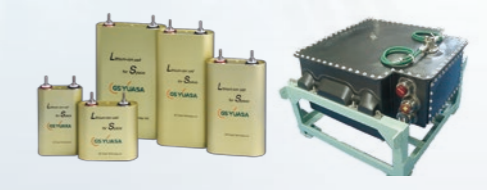
Industrial batteries and power supplies

In addition to lead-acid batteries for electric-powered vehicles such as forklifts, this business segment manufactures and markets backup batteries and power supplies for social infrastructure, such as office buildings, water and sewer systems, and power plants, and other products.



Others

We manufacture and market lithium-ion batteries for a wide range of applications, from the deep sea (manned research submarines) to outer space (satellites and rockets). This segment also includes the development, production, and distribution of batteries and power supplies for other specialized uses.



Supplying State-of-the-Art Technology Nurtured in Batteries to the World

GS Yuasa automotive and motorcycle lead-acid batteries boast top-class global market shares, truly excelling in vast ranging locations and environments around the world. The product list includes automotive lithium-ion batteries that continue to grow in popularity, backup batteries for social infrastructure, for use in aircraft, satellite, manned research submersibles and other specialized applications.



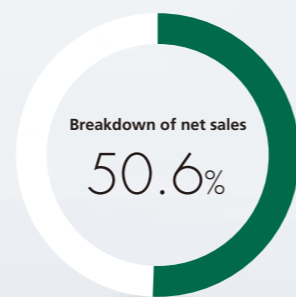
Number of Overseas Sites

37 sites in **19** countries

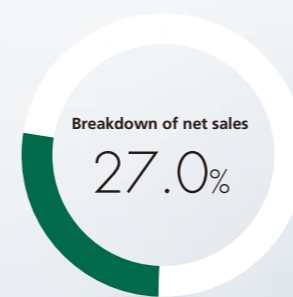
Number of Employees (Consolidated)

14,217

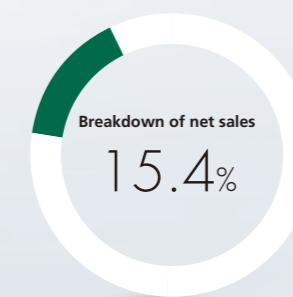
Japan



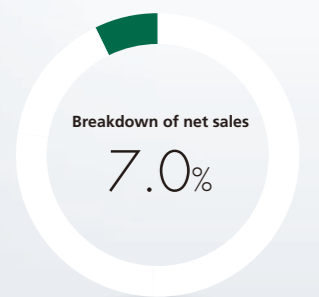
Asia



Europe and America



Others

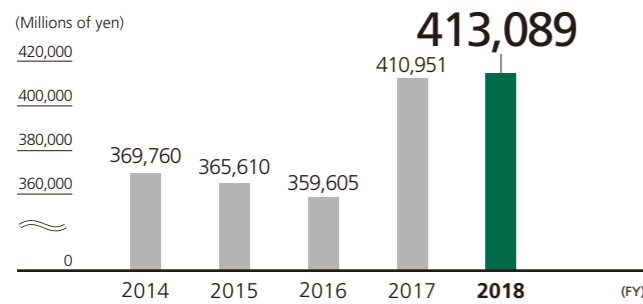


We Seek to Improve Corporate Value Through Pursuit of Sustainable Growth.

Financial Highlights

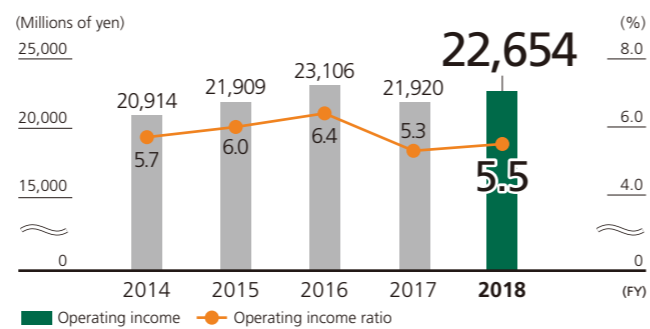
Net sales

Net sales reached record high due to progress in passing along higher lead costs to sales prices, primarily in the automotive battery business, and steady replacement demand in Japan.



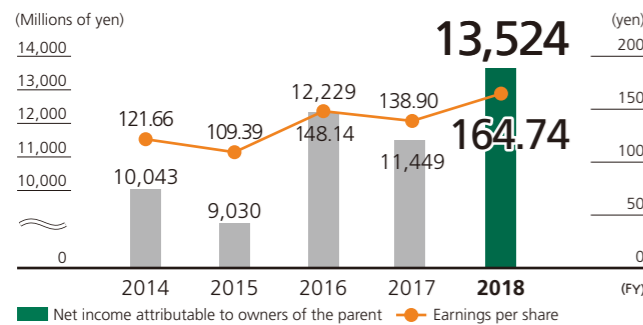
Operating income/Operating income ratio

Sales declined, mainly in China and Southeast Asia, but income was higher as a result of progress in passing along higher lead costs to sales prices. Operating income before goodwill depreciation was 25.066 billion yen, a record high.



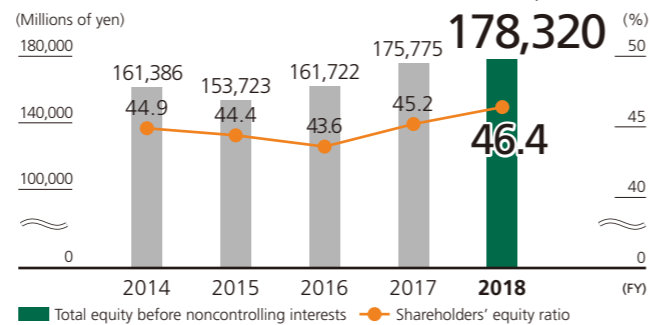
Net income attributable to owners of the parent/ Earnings per share

In addition to an increase in operating income, improved profits from equity investments pushed net income attributable to owners of the parent to a record high.



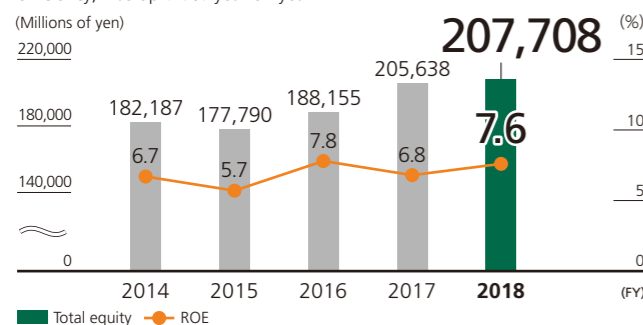
Total equity before noncontrolling interests/ Shareholders' equity ratio

Dividends were paid, foreign currency translation adjustments decreased because of fluctuations in exchange rates and cumulative adjustments relating to retirement benefits fell in conjunction with lower share prices, but shareholders' equity increased as a result of net income attributable to owners of the parent.



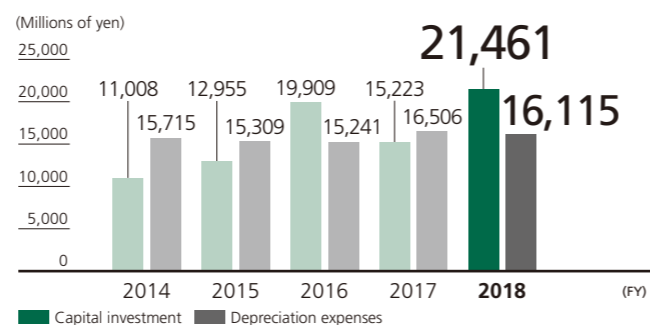
Total equity/ROE

As a result of efficient operation shareholders' equity and an increase in net income attributable to owners of the parent, ROE, an indicator of management efficiency, was up 0.8% year on year.



Capital investment/depreciation expenses

Investments were made for the construction of new plants in Tianjin, China and Hungary, and as a result, capital investment was up from the previous year.

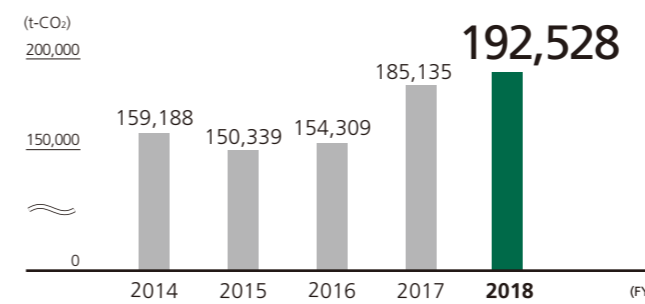


*1 Actual performance of GS Yuasa's seven domestic business sites (Kyoto, Osadano, Gunma, Odawara, Hamanako, Shiga and Ibaraki). Results from fiscal 2016 and earlier are for the above offices excluding Hamanako.
 *2 Data on CO₂ emissions per unit was published by the Electric Power Council for a Low Carbon Society and used in the formula for converting the equivalent amount of CO₂ emissions from electricity consumption.
 *3 Sales volume for FY 2014 taken as 100.
 *4 Quality loss rate for FY 2014 taken as 100. The quality loss rate is the rate of losses that occurred during the manufacture and sale of products.
 *5 Scope of application: General employees (excluding employees on leave and employees posted overseas).
 Period: January to December
 Total annual working hours = Average number of fixed hours worked annually by employees in Japan + Average number of overtime hours worked by employees in Japan
 *6 Applies to all employees of GS Yuasa Group

Financial and Non-Financial Highlights

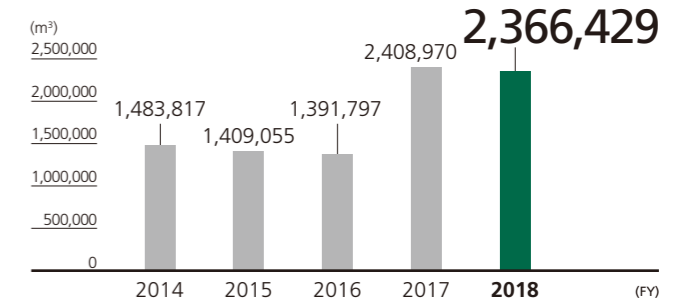
CO₂ Emissions in Production*1 *2

The Group is working to reduce emissions of greenhouse gases by raising the efficiency of energy usage in production activities.



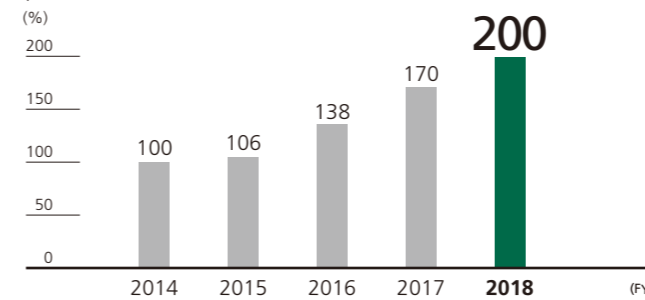
Water consumption*1

The GS Yuasa Group is taking action to use sustainable water resources and reduce waste water by recycling water and implementing water-saving measures.



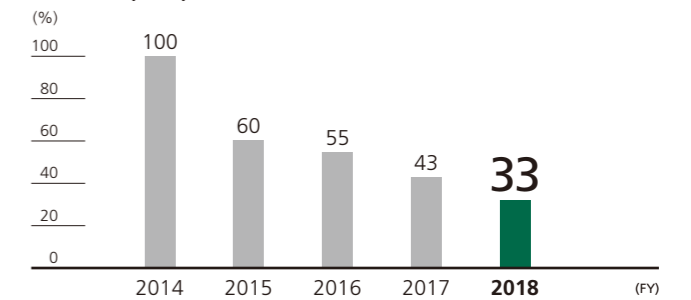
Sales index of lead-acid batteries for low-pollution vehicles with start-stop systems (compared to Fiscal 2014)*3

The trend has been upward since fiscal 2014. The GS Yuasa Group defines environmentally considered products as those products that help mitigate global warming, and we are actively working to develop and popularize such products.



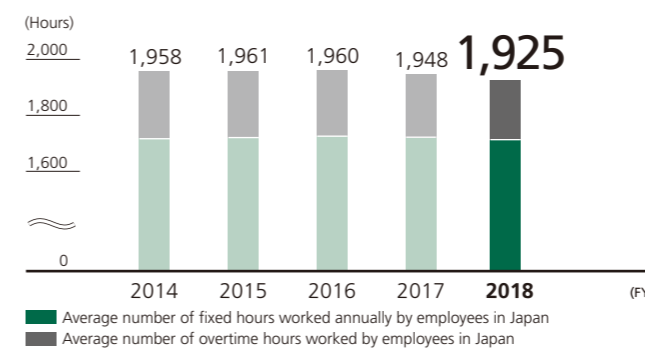
Quality loss rate index for domestic business (compared to fiscal 2014)*4

The trend has been downward compared to fiscal 2014. The GS Yuasa Group is promoting initiatives aiming to improve the quality of the products and services offered to our customers on a group-wide basis, based on the GS Yuasa Quality Policy.



Annual Working Hours*5

The Group takes measures to appropriately managed working hours and is implementing work style reforms.



Number of significant compliance violations

0 The Group did not commit any significant compliance violations that resulted in fines or other penalties.

Achievement rate of human rights education plan*6

100% The Group conducted workplace meetings concerning issues of respect for human rights and harassment.

Supply Chain CSR Survey Implementation Rate (Ratio of total purchases from suppliers who implemented the survey to total purchase amount)

80% The Group conducts surveys on the status of CSR responses by suppliers.

Scope of this report

Period and content covered

Results for fiscal 2018 (April 1, 2018–March 31, 2019)

Companies covered

This report covers the GS Yuasa Group, comprised of GS Yuasa Corporation and its consolidated subsidiaries. Notes are included for data that fall outside the scope of the companies covered.

About importance and comprehensiveness

This report focuses on particularly important information, presented in such a way as to be easy to read and understand. The web site discloses comprehensive information in order to meet public demands.

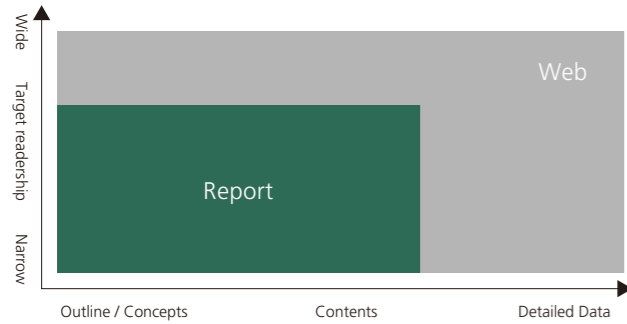
Preparation of this report

This report has been issued to familiarize our shareholders, investors, and other precious stakeholders with the management policies, business strategies, and other key aspects of the GS Yuasa Group. Serving as a vital reference in this compilation and editorial work is the Guidance for Integrated Corporate Disclosure and Company-Investor Dialogues for Collaborative Value Creation formulated by Japan's Ministry of Economy, Trade and Industry. Mobilizing this information, the mission of medium- to long-term value creation pursued by the Group is explained with concrete examples under "values," "business models," and "strategies and results." In all cases, the goal is to profoundly enhance stakeholder understanding.



Disclaimer

This report contains earnings forecasts and other financial information pertaining to future business performance. These items are judgments made by the managers of GS Yuasa Corporation based on currently available information and they include an element of latent risk and uncertainty related to economic trends, demand, the forex rate, the tax system, and other systems. For this reason, actual earnings could diverge greatly from those presented here. GS Yuasa does not take responsibility for the accuracy of information on financial or business forecasts presented in this report.



Value Creation Initiatives

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We became a signatory to the United Nations Global Compact (UNGC) in April 2018. We will contribute to achieving the Sustainable Development Goals (SDGs) through business activities.

The Sustainable Development Goals or SDGs for short are a platform of initiatives adopted by the General Assembly of the United Nations in September 2015. Aimed at solving issues of global importance such as hunger and poverty, climate change, etc., the platform is meant to be implemented by all member nations. These ideals fully match our corporate principles and we will participate to the best of our abilities.



GS Yuasa was formed by Japan Storage Battery and Yuasa Corporation—two companies behind the foundation of storage battery development and production in Japan. Both in business for close to a full century, they joined hands to advance Japan's storage battery sector. With today's needs to conserve energy, reduce environmental burdens, and address other social issues, the roles of storage batteries, power source systems, and other GS Yuasa Group products have never been greater.

Here we use specific examples to profile our value creation initiatives. We believe that the Group's business activities and products can richly contribute to resolving numerous social issues, bringing greater value to society, and raising our own corporate value. Now turning to the next 100 years, GS Yuasa is determined to use the corporate vision of Innovation and Growth to excel as an energy device company, supplying comfort and safety to customers everywhere. We pledge to continue to rise to the challenge of realizing a genuinely sustainable society.

Steady Accumulation of Innovation in the Sustained Quest for Growth

The GS Yuasa Group began from the lead-acid battery business, developing Japan's first automotive lead-acid battery. Numerous other "Japan firsts" led to innovative products that further claimed titles of "world firsts." From automobiles through satellites, the applications expand far and wide, as these products continue to shine in a truly impressive range of use environments.

GS (Japan Storage Battery)

1895

Genzo Shimadzu manufactures Japan's first lead-acid battery

1917

Japan Storage Battery Co., Ltd. established

1920

Genzo Shimadzu invents "reactive lead oxide production method"

1938

Production of alkaline batteries begins

1989

Maiden voyage of Shinkai 6500 manned research submersible equipped with GS produced batteries

YUASA (Yuasa Corporation)

1915

Shichizaemon Yuasa embarks on storage battery manufacture

1918

Yuasa Storage Battery Co., Ltd. established

1920

Production of automotive lead-acid batteries begins

1941

Production of alkaline batteries begins

1966

Dry and charged batteries go on sale in Japan for the first time

GS Yuasa Corporation

2004

GS Yuasa Corporation established through corporate merger



2007

Lithium Energy Japan established as a large-size lithium-ion battery joint venture between GS Yuasa, Mitsubishi Corporation, and Mitsubishi Motors Corporation

2009

Blue Energy Co., Ltd. established with Honda Motor Co., Ltd.

2010

Full-fledged deployment of railway-use lithium-ion battery system on hybrid railroad cars

2016

Completed the transfer of Panasonic Corporation's lead-acid battery business

2017

Lithium-ion batteries installed for use on International Space Station

2017

Proving tests commence on AI-equipped storage battery system status monitoring

2018

Contributes to amelioration of wind power output fluctuation.

2018

Order received for one of the world's largest storage battery facilities (Toyotomi-cho, Hokkaido)

1895

1950

2000

Contributing to society through products

1900s

Development of Japan's first lead-acid battery
Key contributions to the steady supply of electric power



1930s

Supply of lead-acid batteries for the first electric vehicle (EV) produced in Japan
Supply of new mobility means



1950s

Marketing of a small-size/lightweight storage battery for motorcycles
Powering Japan's postwar recovery



1990s

Small lithium-ion battery developed
Supporting the evolution of mobile phones



2000s

Development of renewable energy storage battery systems
Contributions to promoting clean energy



Lithium-ion batteries supplied for the i-MiEV, the world's first mass-produced electric vehicle
Ushering in a new EV era



Working through Value Creation in the Quest for Sustainable Growth

Social issues

Issues to be tackled by society as a whole

Promulgation of Sustainable Development Goals (SDGs)

Promote initiatives to achieve 17 goals, focusing on resources, climate change, and health, among others.

Issues concerning our Group

Climate change and global warming

Carbon dioxide (CO₂) emissions from over 1.3 billion automobiles worldwide are having a serious impact on global warming.

Depletion of natural resources

Increased use of renewable energy is needed as a replacement for limited fossil fuels, such as oil and coal.

Intensifying disaster

Since the supply of electricity is often interrupted during disasters, such as floods or earthquakes, the importance of backup power supplies is growing.

Operational processes

- A stable financial foundation bolstered by the Group's mainstay lead-acid battery business
- Solid strengths for developing technologies and cultivating markets built on an outstanding track record and customer trust
- Advanced technological capabilities bolstering the lithium-ion batteries business
- Strong competitiveness and brand power supported by business partnerships
- A workforce that upholds and passes down technologies rooted in sound understanding of the Company's corporate philosophy
- CSR ingrained in the corporate culture

Philosophy Innovation and Growth

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

Underpinnings of value creation

Business activities

Automotive Batteries (Japan/Overseas)
Automotive and motorcycle lead-acid batteries

Automotive Lithium-ion Batteries
Lithium-ion batteries for EVs, PHEVs, HEVs

Industrial Batteries and Power Supplies
Batteries for industrial applications, power supply systems, lighting equipment, membrane systems

Others
Lithium-ion batteries for manned research submarines, satellites, rockets



Mid-Term Management Plan

Materiality (Key CSR issues) advanced by GS Yuasa

Environmental issue initiatives

- Environmental protection promotion
- Environmentally considered product development and popularization

Social issue initiatives

- CSR procurement promotion
- Respect for character
- Human resource development guidelines
- Improvements in working environment/industrial health and safety
- High-quality product supply

Strengthened governance

- Scrupulous CSR/compliance
- Intellectual property protection
- Systematic control of confidential information

Growth driven by solving social issues

Maximization of profits

Maximization of returns to shareholders through efficient use of assets

Innovation supported by enhanced technological capabilities

Long-term vision
An energy device company committed to the constant creation of new value

Growth for employees, maintaining and expansion of employment

Building stable supply systems through strengthened bonds with suppliers

We believe that the GS Yuasa Group's products and business activities will contribute to the solution of various social issues, including achievement of the Sustainable Development Goals (SDGs), and that, by bringing value to society, the Group will enhance its own corporate value as well.

Furthermore, in order to avoid the risk of damage to corporate value, we believe it is important to minimize any negative impact of business activities on society. On the basis of our corporate philosophy, by continuing our pursuit of cutting-edge and trailblazing technologies, the GS Yuasa Group aims to create value that contributes to the realization of a sustainable society.

Through such efforts, we believe that we can achieve our Group's own sustainable growth as well.



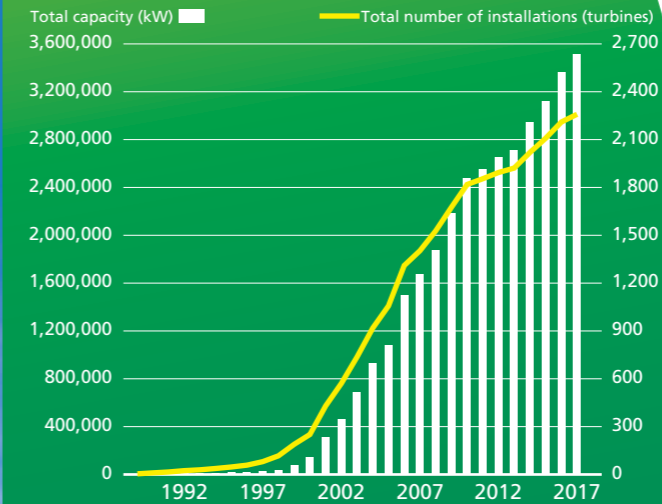
Promoting Expanded Use of Renewable Energy

Batteries for one of the world's largest wind power storage battery facilities (Toyotomi-cho, Hokkaido)

In order to make effective use of renewable energy, it is essential to employ a storage system that stabilizes output fluctuation. Rechargeable batteries from GS Yuasa feature excellent charging and discharging performance and durability which enables the creation of a stable power supply. By developing and supplying such advanced batteries, the GS Yuasa Group helps to reduce the burden on the environment.

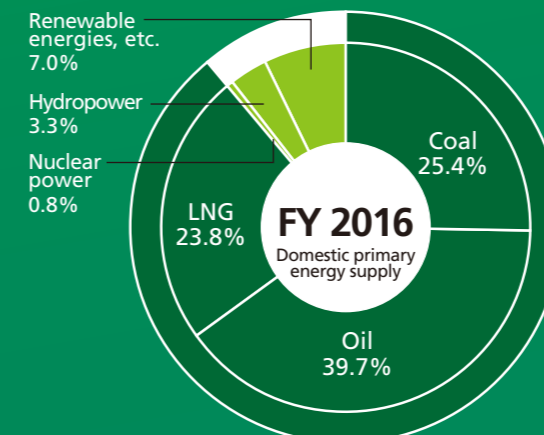


Adoption of wind power installations in Japan



Source: New Energy and Industrial Technology Development Organization (Japanese National Research and Development Agency), Installation Record of Wind Power Generation Equipment in Japan

Japan's primary energy supply structure



Source: Agency for Natural Resources and Energy at the Ministry of Economy, Trade and Industry, Total Energy Statistics

Contributing to the diffusion of renewable energy and the solution of climate change issues

In recent years, power generation using renewable energy sources has become the focus of attention all over the world, because it can act as a countermeasure to issues such as climate change caused by global warming and the depletion of fossil resources. Wind power generation offers a relatively high demand rate and the capability to produce power around the clock, day and night. In Japan, the Hokkaido and Tohoku regions provide good wind conditions throughout the year and are considered suitable locations for wind power facilities. Increasing adoption of such installations is expected in the future. The GS Yuasa Group is working to advance technical progress in the areas of storage batteries and dedicated maintenance systems in order to promote the spread of renewable energy and the realization of a sustainable society.



7.2 By 2030, ensure universal access to affordable, reliable and modern energy services.



13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

Wind power generation has high potential as a deterrent to global warming

In recent years, the effects of measures to combat global warming by switching to renewable energy have received great attention, and wind power generation is increasingly being adopted in Japan.

The northern region of Hokkaido (the Dohoku region) is suitable for wind power generation, but weaknesses in the transmission grid so far have prevented effective use of wind resources. The Ministry of Economy, Trade and Industry therefore is pursuing a subsidized project entitled a Project for the Development of a Transmission Network for Wind Power Generation. The newly established Kita Toyotomi Substation is part of this project, where GS Yuasa will be installing the storage battery equipment. Work is to begin in 2020 on what will become one of the world's largest storage battery facilities.

Outline of Kita Toyotomi Substation

- Feature: One of the world's largest storage battery facilities Capacity: 720MWh
- Location: Toyotomi-cho, Teshio-gun, Hokkaido
- Start of operations: Fiscal 2023 (planned)

Developing and supplying superior storage batteries to improve power supply stability

In wind power generation, the output fluctuates significantly according to changes in wind strength and direction. This makes it difficult to ensure stable power supply, so that the balance between supply and demand is disrupted which can affect the entire power grid.

Increasing battery storage capacity is a way to overcome

this dilemma. The presence of a storage battery system makes it possible to absorb fluctuations in the generation of the source and provide stable power.

Lithium-ion batteries from GS Yuasa have an extensive track record in automotive and industrial use. Our mass production system is well established and we supply products to a wide range of fields. We were selected on the strength of our proven technology, outstanding reliability, superior safety, and solid long-term support framework.

For the current project, a new type of high-energy lithium-ion battery with low internal resistance will be used. This will contribute to space savings and longer life of the storage battery facility. The enormous capacity of 720MWh is the equivalent of the battery banks of 45,000 electric vehicles. Regular maintenance and inspection are important aspects of battery storage facilities. GS Yuasa will be providing 24-hour voltage management and fault monitoring to further enhance the reliability of the system.

Expanding demand for storage batteries

In order to effectively utilize the electric power generated by renewable energy sources, battery storage systems that stabilize operation are essential. This in turn is driving a rise in demand for batteries suitable for this purpose.

Battery storage systems also increasingly have other important roles to play, for example as backup power sources in the event of a large-scale natural disaster.

The GS Yuasa Group will continue its intensive R&D efforts into various types of batteries, with the aim of helping to realize safe and reliable energy systems and thereby contributing to the solution of social issues and the protection of the global environment.

Contributing to International Efforts to Mitigate Global Warming

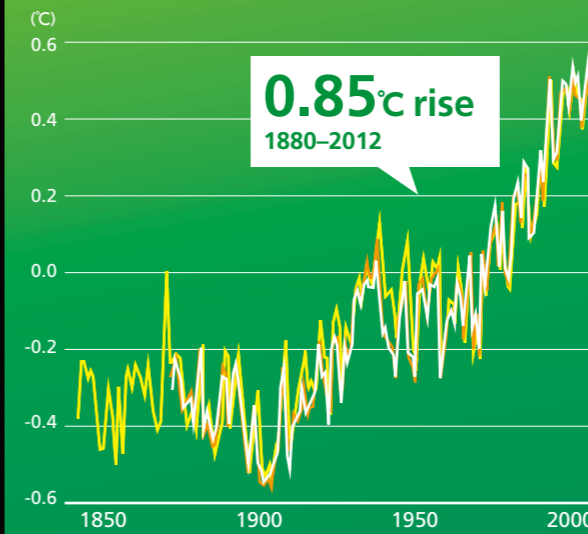
Supplying lithium-ion batteries for the Greenhouse Gases Observing Satellite IBUKI-2

With a view toward measures to counter global warming, high-precision observation data about actual greenhouse gas emissions are crucially important. The IBUKI-2 satellite covers almost the entire earth from space and is able to provide such data. It is equipped with high-performance, high-quality storage batteries from GS Yuasa which are able to withstand the harsh conditions in space, thereby contributing to stable operation of the satellite.



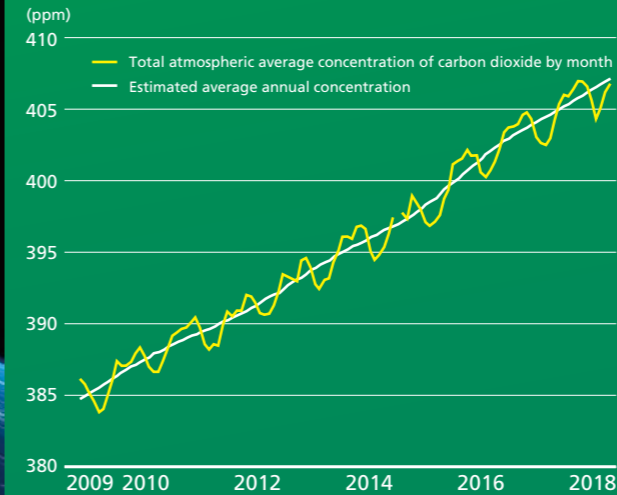
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Global temperature rises over time (average)



Source: IPCC, Fifth Assessment Report

Changes in carbon dioxide concentrations in the entire atmosphere (based on observation data from IBUKI satellite)



Source: Ministry of the Environment, National Institute for Environmental Studies, JAXA, GOSAT Project

Supporting accurate observation of global greenhouse gases with world-leading technology

The world is currently facing environmental changes such as weather irregularities and rising sea levels due to global warming, and deforestation and desertification due to human development. With the increase of carbon dioxide and other greenhouse gases, the survival of living organisms themselves is about to be threatened. Furthermore, the occurrence of large-scale disasters threatens society and life. By supplying storage batteries for the observation satellite, the GS Yuasa Group will contribute to accurate greenhouse gas measurements on a global scale, which in turn will be useful for devising future countermeasures.



9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.



13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Efforts to combat climate change with satellites

Reflecting growing concern over the aggravation of climate change caused by global warming, the Paris Agreement was adopted in 2015 as an international agreement on climate change. Countries around the world are now pursuing initiatives aimed at resolving issues.

Against this backdrop, the Japan Aerospace Exploration Agency (JAXA), the Ministry of the Environment, and the National Institute for Environmental Studies have jointly developed IBUKI-2 as a greenhouse gas observation technology satellite. It was successfully launched in October 2018 from the Tanegashima Space Center in Japan to monitor global emissions of carbon dioxide, methane, and carbon monoxide, which are greenhouse gases.

Greenhouse gas emission monitoring from space is becoming increasingly significant

The observation of greenhouse gas emissions from the ground is hampered by the limited number of observation points, as well as different observation methods by country and region, leading to a lack of accurate data. By contrast, observation from space has enabled an increase in observation points by a factor of about 150, allowing precise and uniform monitoring of the entire globe. In addition, combination with ground-based observation data makes climate change predictions more sophisticated and contributes to the accuracy of carbon emission estimations.

Various countries around the world are now pursuing efforts to develop and launch satellites for observing greenhouse gases, and mutual verification of observation data with IBUKI and IBUKI-2 is also planned. These efforts are expected to

contribute to achieving the targets of the Paris Agreement.

High-performance batteries support stable observation

The design life of IBUKI-2 is five years. To enable long-term and continuous observation, a compact, lightweight yet high-capacity, high-performance lithium-ion battery was needed, which would have to withstand long-term use in a harsh environment including conditions such as weightlessness and vacuum. GS Yuasa developed the world's first lithium-ion battery for use in satellites and has the top share on a by-volume basis in this market. Our track record was one of the factors why we were selected as a supplier of lithium-ion batteries for this project.

Launching a satellite is a very expensive process, and once

in space, no repairs or replacement are possible in case of a problem. Reliability is therefore a paramount requirement. Our lithium-ion batteries are helping to reduce launching costs and contribute to a drastically prolonged service life.

Aiming for further improved performance

Ever since we developed our first lithium-ion battery in the 1990s, we have continued to strive for further performance enhancements. Lithium-ion batteries currently under development for satellite applications will feature an even higher energy density and enable longer operation in space.

We will continue to deliver the highest-performance, highest-quality batteries that are designed to meet the needs of their respective application environment, ranging from everyday life to extreme conditions on the cutting edge of exploration.

For a Sustainable Society



Contributing to the diffusion of eco-friendly cars

Supplying key components necessary for eco-friendly cars



Since emissions of carbon dioxide (CO₂) from the more than 1.3 billion vehicles on roads around the world are having an impact on global warming, regulations on CO₂ emissions and fuel consumption are becoming increasingly stringent in various regions. For this reason, the diffusion of eco-friendly vehicles, such as hybrid electric (HEVs), plug-in hybrid electric (PHEVs), and electric vehicles (EVs), is advancing. And even in the case of conventional gasoline vehicles, the standardization of start-stop functions designed to contribute to the improvement of fuel consumption is progressing. Our Group's products are playing an important role in this shift to eco-friendly and the electrification of automobiles.



Contributing to the wider use of renewable energy

Supporting the stable use of renewable energy with power supply systems and power storage technology



Since worldwide energy demand is increasing as a result of burgeoning populations and economic growth, it is necessary to expand the use of renewable energies to replace the limited fossil fuels, such as oil and coal. The introduction of power source systems and storage batteries to stabilize output fluctuations is essential for the effective use of energy from photovoltaic or wind power generation. Our Group's products are attracting much attention as indispensable items for the diffusion of photovoltaic and wind power generation.



Contributing to the increased sturdiness of social infrastructure

Assisting the stabilization of power supplies with backup batteries and power supply devices



In an age when electricity is needed for all kinds of things, the activities of society would come to a halt if the supply of electricity were cut off. Since the supply of electricity is often interrupted during disasters, such as floods or earthquakes, the importance of backup power supplies is growing. With their outstanding quality and reliability, our Group's products are safeguarding society's basic infrastructure. In addition, we are contributing to the continuity of business in office buildings and plants in the event of a large natural disaster.

Vision and Strategy

GS YUASA Report 2019

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In May 2019 GS Yuasa compiled the Fifth Mid-Term Management Plan to realize our long-term vision of becoming an “energy device company committed to the constant creation of new value,” set on the premise of our long-term forecast of the business environment.

Here we present an overview of the Fifth Mid-Term Management Plan. In addition, the president, chief financial officer and directors in charge of individual business fields give an explanation of efforts to address important strategic tasks in the Fifth Mid-Term Management Plan and growth strategy toward the future.

Realizing sustainable growth for business and society



Osamu Murao
President GS Yuasa Corporation

Values

Pursuing business activities based on a clear vision and a sense of values

More than 100 years have passed since our company was established. While focusing on storage batteries, we have provided a wide range of other products as well, evolving with the times and always staying responsive to society's needs. At the beginning of the 20th century, we made products to power radios and industrial communication equipment and to provide auxiliary power. Our automotive lead-acid batteries helped accelerate the postwar motorization trend. While working on solutions for the needs of society at different points in time, we also grew as a company. This fact is reflected in our company philosophy of Innovation and Growth and it has inspired us to formulate the 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.

In the 21st century, the conservation of power and the reduction of the environmental burden have emerged as the foremost goals on a global scale. Our group's products centered on the task of storing energy therefore have ever more important roles to play. The GS Yuasa Group will continue to provide value through innovative products that make a significant contribution to building a sustainable society.

Pursuing management with quality as the core concern

Ever since I became president in 2015, I have pursued a policy of "management with quality as the core." This of course applies to the products as such, but my goal is to also improve the quality of overall management including business processes through TQM.*1 With this in mind, our group regularly holds Quality Management Meetings, Quality Improvement Cases Presentation Meetings and Critical Quality Problem Example Exhibitions to share experiences and know-how of the shop floor with all members of the company, including those overseas. I am always emphasizing the importance of recognizing mistakes and failures as opportunities to learn. As a result of production and sales working hand in hand to realize TQM, we have been selected as a recipient of the Deming Prize.*2

As we continue these initiatives, it is becoming evident

every year, quality-driven initiatives are spreading throughout the business process. For example, most of the Quality Improvement Cases Presentations initially were from departments directly related to quality and from the technology and manufacturing side, but about half of the eight teams that participated in fiscal 2018 were actually from general affairs and human resources, etc., only related indirectly to quality management. In addition, since last year, the Quality Assurance Manager of each division also serves as the Manager of the Quality Management Department, a company-wide organization. This establishes a quality management system that reaches across divisions, thereby demonstrating the awareness that TQM is essential for management.

As a result, I am glad to report that complaints from the market and losses due to in-process defects are decreasing year by year.

*1: Total Quality Management. This refers to maintaining and improving the overall quality of corporate activities.

*2: An award given to private entities and individuals who have made significant contributions to the progress of TQM. In Japan, recipients are selected by the Deming Prize Committee run by the Union of Japanese Scientists and Engineers.

Business model

Applying technical capabilities gained in extreme environments to automotive and industrial batteries

GS Yuasa was the first company to successfully manufacture lead-acid batteries in Japan, and we always have pursued a path of innovation, achieving many "firsts" both in Japan and on the global stage. While continuing to push boundaries, we developed and perfected an arsenal of unique technology.

Our batteries are used in the manned research submersibles Shinkai 6,500 which can reach a depth of 6,500 meters, and in the meteorological satellite Himawari orbiting the earth at an altitude of 36,000 km. Even in such extreme environments that almost defy the imagination, they deliver stable performance. At a depth of 6,500 meters, the water pressure is an amazing 650 kg per square centimeter. This could be likened to balancing a small car on one's fingertips. By contrast, the pressure in the vacuum of space is almost nonexistent. It is no easy feat to develop the technology for batteries that can function normally in such environments.

The "quality power" developed and refined by GS Yuasa while meeting the strict quality requirements of Japanese car

manufacturers which are our major clients, and the technological expertise gained in building batteries for ultra-extreme conditions, together with our famous reliability and brand power are the elements that enable us to boldly explore new fields and enter new markets. This is the basic business model of GS Yuasa. In the future, it will be important to establish a long tail business model centering on industrial use and including the maintenance aspect as well.

Results (Previous Mid-Term Management Plan)

Accelerating R&D and establishing a new organizational structure to expand sales in untapped markets

Although net sales and operating income before amortization of goodwill attained record highs in fiscal 2018, they did not reach the final targets of the Fourth Mid-Term Management Plan. Some target markets of the various business divisions did not grow as expected, and increases in raw materials costs and other expenses could not be fully compensated for by rationalization and cost cutting. However, the automotive lithium-ion battery business remained in the black for the third consecutive term, and the takeover of Panasonic's lead-acid battery business has allowed us to build a rock-solid framework for automobile batteries in Japan. On the overseas stage, we were able to achieve results such as preparing for expanding sales in as yet unexplored areas by building a new factory in Turkey and establishing a new company in Myanmar.

An overall result of the Fourth Mid-Term Management Plan was the reorganization of our corporate structure. Originally, our organization was divided into separate product categories such as automotive batteries, industrial battery and power supplies and lithium-ion batteries, further separated by geographic location such as Japan and overseas. By changing this into a structure aligned by products, we are now in a position to optimize both operations and governance. With regard to lithium-ion battery R&D as well, resources were divided among the Research Center, business divisions and the group companies Lithium Energy Japan Co., Ltd. and Blue Energy Co., Ltd. These have now been consolidated into the Lithium-ion Battery Technical Center, and the R&D Center will focus on next-generation projects such as all solid-state batteries. Their respective roles have been clarified which is also expected to result in more speedy research and development.

Strategy (New Mid-Term Management Plan)

Creating new values in keeping with the *Mono-Koto Zukuri* (product and service creation) concept

The Fifth Mid-Term Management Plan which was launched in fiscal 2019 will harness these advantages, aiming for net sales of more than 460 billion yen, operating income of more than 28 billion yen and a ROE of 8% or more, under the *Mono-Koto Zukuri* banner.

The automotive lead-acid battery business and the lithium-ion battery business are our core operations where solid long-term growth is expected. Looking towards the possible market scenarios for 2030 and beyond, lead-acid batteries may register a slight increase globally but larger gains in emerging nations. Sales of lithium-ion batteries on the other hand are expected to grow significantly mainly due to the spread of next-generation eco-friendly vehicles. The Fifth Mid-Term Management Plan (fiscal 2019–2021) therefore is positioned as a three-year period of forward-looking investment for production expansion. In the area of lead-acid batteries, we will aim to secure profits by concentrating on selected target regions for both production and sales, and optimizing the product range and production systems accordingly.

As for lithium-ion batteries, so far, we have made investments in all three major categories, namely hybrids (HEV), plug-in hybrids (PHEV) and electric vehicles (EV). The Fifth Mid-Term Management Plan will put the emphasis on lithium-ion batteries for HEVs. As the electrification of the automobile in general progresses, we believe that HEVs are still a category with growth potential. We also expect 12V lithium-ion starter batteries to increasingly replace lead-acid batteries mainly in Europe. In view of technological advances such as autonomous driving, we think that there is a variety of potential demand for 12V lithium-ion batteries, making this also a promising growth area.

In the industrial-use storage battery sector, there is increased demand for products for renewable energy systems such as wind power and photovoltaic power installations. Wind power generation in particular offers low power generation costs and the potential for large projects. In such markets, it is not enough to simply sell products. Rather, continued maintenance and other services will increasingly become important, creating a range of new business opportunities. A major shift is underway from *Mono* (products) to *Koto* (services) that create new value by also

harnessing the capabilities of AI and the IoT.

In Japan, the fixed feed-in tariff (FIT) system for photovoltaic power generation installations will end in 2019. This in turn means that direct consumption in the home will increase, which will boost demand for residential-use storage batteries. GS Yuasa is getting ready to cooperate with various system manufacturers in order to respond to these needs.

Aiming to contribute to the achievement of SDGs through a CSR oriented management strategy

The Fifth Mid-Term Management Plan stresses the importance of establishing business processes that incorporate CSR issues into our business strategy. In order to firmly integrate CSR into management, it is important to be aware of the intricate connection between CSR and daily operations.

During the period of the Fourth Mid-Term Management Plan, we established a CSR Office and formulated the CSR Policy and Code of Conduct to serve as a basic guideline for CSR related activities of the GS Yuasa Group. We also formed a CSR Committee to oversee and promote group-wide CSR activities. In the current management plan, we place particular emphasis on contributing to the realization of the Sustainable Development Goals (SDGs), which are essential for global society and can be seen as a future market requirement as well. By instilling awareness in our employees, we will pursue business growth through the resolution of social issues.

In our current world, energy devices are becoming ever more important in realizing a sustainable society. Along with the current management plan, we have therefore formulated a long-term vision expressing our goal to become an "energy devices company that continues to create new value." This concept arises from our desire to provide new value to customers both now and in future.

By developing and manufacturing batteries and by applying the associated technology and products to help solve important issues that are facing society, we aim to evolve into an energy systems company skilled also in aspects such as AI, IoT and software technology.



Message to stakeholders

Creating new value and realizing sustainable growth with the battery business at the core

As the world faces serious energy problems, batteries are increasingly seen as playing a vital role in finding solutions. Batteries from the GS Yuasa Group perform crucial tasks in radically different environments, ranging from deep sea exploration to social infrastructure on the ground and equipment in aerospace. Our product portfolio offers essential tools for the creation of a sustainable society.

With batteries at the core of our operations, we will continue to create new value that contributes to the sustainable growth of business and of society as a whole.

GS Yuasa Corporation
President

Overview of the Management Plan

Long-Term Vision

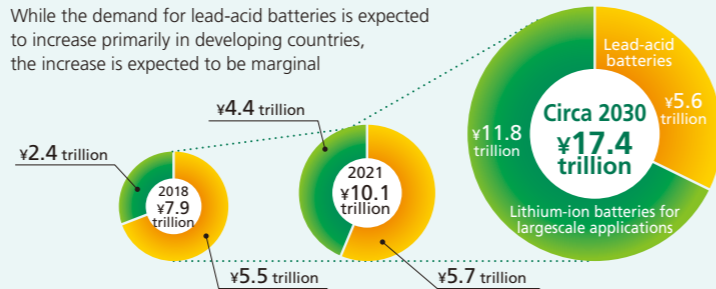
Become an energy device company that continually creates new value

At present the automotive industry is entering a phase of major innovation called CASE (connected, autonomous, shared, electric). In addition, because of growing awareness of the need to protect the global environment, the role of energy devices is becoming more important.

In these circumstances, the demand for lithium-ion batteries for automotive and industrial applications is expected to grow considerably, especially in major developed countries. The global demand for lead-acid batteries is forecast to remain stable too, so we believe that the chances for GS Yuasa to play a positive role are going to increase more and more. Eyeing these changes in the business environment as opportunities, we have compiled a long-term vision and the Fifth Mid-Term Management Plan.

Business environment circa 2030

- Lithium-ion battery for large-scale applications is expected to grow significantly primarily in the field of next-generation eco-friendly vehicles in the lead up to the 2030s
- While the demand for lead-acid batteries is expected to increase primarily in developing countries, the increase is expected to be marginal



Source: Fuji Keizai, Future outlook for energy, large secondary batteries, and materials 2018 –Energy Device Edition (plus estimates)

Current issues and future vision

	Current issues in 2018	Vision for 2021 / Mid-term goal	Vision for 2030 / Long-term goal
Automotive battery business	There are growing overseas markets in which the market share is low	Expanded global share through applying technologies developed for eco-friendly vehicles in Japan	Build optimal global production framework
Industrial battery and power supply business	For existing businesses in Japan within the social infrastructure field, the core of demand is for replacement	Focus is on the utilization of IoT and renewable energy fields	Overseas expansion of business with local production for local consumption-type business
Automotive lithium-ion battery business	Excessive capital investment competition	Promoting lithium-ion batteries for hybrid electric vehicles and 12V lithium-ion batteries	Expand industrial applications and utilize post lithium-ion batteries research findings

Mid-Term Management Policy

Based on the *Mono-Koto Zukuri* (product and service creation) concept, GS Yuasa will engage in strategic activities that lead to sustainable growth of both the lead-acid battery and lithium-ion battery businesses through creation of new value.

Key points

- As demand for lithium-ion batteries for both automotive and industrial applications is expected to increase significantly, we will leverage our strengths relating to hybrid electric vehicle, 12V lithium-ion batteries, and batteries for industrial applications in order to pursue further expansion
- Global demand for lead-acid batteries is stable



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

Important mid-term strategic tasks

- Step-up our initiatives pertaining to priority CSR tasks identified in our business processes
- Strengthen the management platform through enhanced profitability of the lead-acid battery business and overseas business expansion
- Lay the foundations for expanding the scale and profits of the lithium-ion battery business from the period covered by the Sixth Mid-Term Management Plan onward

Business tasks by segment

Automotive Batteries

In Japan/Asia, the business's core region, we will further increase profitability through offering high quality, high value-added products and enhancing productivity. We will also deploy sales expansion measures in regions where have low market share or no presence. To meet demand for environment-friendly technologies and in response to the shift toward electric cars, we will pursue development and expansion of the market for 12V lithium-ion batteries.

Industrial Batteries and Power Supplies

In existing markets, we will work to expand business by further enhancing profitability and expanding overseas through *Mono-Koto Zukuri* (product and service creation) utilizing AI and IoT. Against the backdrop of demand for replacement of lead-acid batteries and the new and expanding renewable energies fields, we will further promote development and sales of industrial-use lithium-ion batteries.

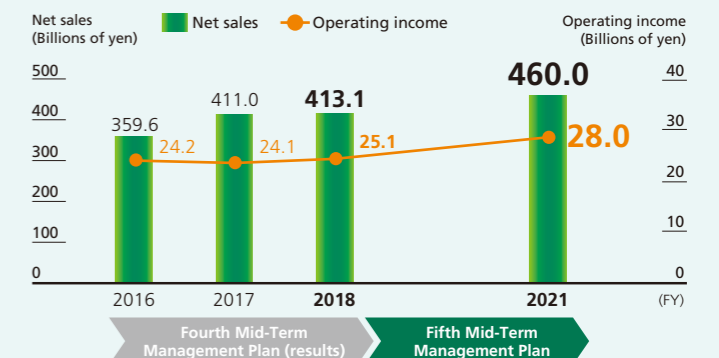
Automotive Lithium-ion Batteries

We will gain a unique market position by leveraging our strengths and deploy measures for stable growth and enhancement of profitability. In particular, we position increased business expansion for hybrid electric vehicle applications and development and mass production of 12V lithium-ion batteries as business growth drivers and will therefore pursue these. We will apply the knowhow gained in batteries for electric vehicle/plug-in hybrid electric vehicle applications and will seek to expand sales of batteries for industrial applications.

Mid-Term Management Targets (targets for FY2021)

Net sales	460.0 billion yen or more
Operating income	28.0 billion yen or more
ROE (return on equity)	8% or more
Total payout ratio	30% or more
Domestic lead price quote	300,000 yen/t
LME	2,100 U.S. dollars/t
Exchange rate	110 yen/U.S. dollars

The above indices are based on income before amortization of goodwill (operating income and net income).





Toshiyuki Nakagawa
Chief Financial Officer and Senior Managing Director
GS Yuasa Corporation

Promoting financial strategy and ESG strategy to realize long-term growth

Financial strategy

Tackling management emphasizing capital efficiency

One of the financial policies raised by our Fifth Mid-Term Management Plan, which starts in 2019, is the promotion of better efficiency of our invested capital. Return on invested capital (ROIC) is used as a management index in each business unit and Group company. And at various important meetings, such as management meetings and gatherings of individual business sector leaders, in discussions of business plans and so on, proposals are already being made from the perspectives of operating funds and inventory with an awareness of capital efficiency. From now on, I think we must further accelerate ROIC management by expanding this trend into a Group-wide campaign so that the attitude of emphasizing capital efficiency permeates employees closer to the ground as well.

Aiming for both growth and financial discipline

Until now our Group has achieved growth by investing

the cash obtained from businesses related to lead-acid batteries, which can be expected to yield stable revenue, in the new growth fields of lithium-ion batteries and overseas business. In the Fifth Mid-Term Management Plan, we have scheduled the largest-scale investment since the Second Mid-Term Management Plan (fiscal 2010–12). Half of the investment of nearly 100 billion over three years will go to businesses related to automotive lithium-ion batteries, including increased production of batteries for hybrid vehicles and 12V engine startup and backup, which are forecast to achieve high growth up to the 2030s. The remaining half will go toward maintaining businesses related to lead-acid batteries as strong earners and renovating our aging head office plant to improve production efficiency. Investment funds will be covered by our operating cash flow of nearly 35 billion yen, although part may also be procured from external sources.

As well as this large-scale investment, our Group established the Facility Investment Committee more than a decade ago to ensure the appropriateness of various investment decisions. The committee, which I currently chair, comprises directors from development and manufacturing and meets in principle once a month to examine the appropriateness of cases of capital investment amounting to 30 million yen or more proposed by business divisions. We

aim to eliminate wasteful investment by carefully scrutinizing plans to determine whether they are appropriate, including their necessity and cost.

Furthermore, even after a project passes the initial test in the committee, we carry out practical evaluations at the interim and final stages to determine whether the project is having the hoped-for effect and yielding a return on investment. I believe that these double and triple checks are enabling us to realize appropriate capital investment.

Regarding the building of a robust and streamlined corporate structure, which is one of the basic pillars of financial strategy, I believe that we managed to achieve this goal to an extent during the Fourth Mid-Term Management Plan. Because interest-bearing debts fell to a level of less than 67 billion yen, the debt redemption period was 2.2 years, which was close to our target of two years.

For that reason, we have been able to embark on large-scale investment envisioning long-term growth during and beyond the Fifth Mid-Term Management Plan. Previously we were conducting management with one foot on the brake, but now we have built a robust corporate structure that can stand fast even if we press on the accelerator a little. During the Fifth Mid-Term Management Plan, in order to activate growth investment, we expect our interest-bearing debts to increase somewhat, but we will strive to keep the debt redemption period within three years and to achieve both growth and financial discipline.

Implementation of stable shareholder returns

The GS Yuasa Group recognizes that providing returns to shareholders is a most important task in management. As in the Fourth Mid-Term Management Plan, in the Fifth Mid-Term Management Plan we have set a total payout ratio of 30% or more as our target.

Effective October 1, 2018, GS Yuasa consolidated its shares, with five shares of common stock becoming one share. Regarding the dividend for fiscal 2018 calculated according to the number of shares after the consolidation, because we managed to achieve our initial target for current-term net income attributable to owners of the parent, we declared a dividend of 50 yen per share. (Since we had implemented an interim dividend of 15 yen at the end of the second quarter, the year-end dividend was 35 yen.) Regarding the dividend for fiscal 2019, assuming that we achieve the expected profit, we plan to pay the same level as fiscal 2018.

In addition, we continue to emphasize treasury stock acquisition, which amounted to 1 billion yen in fiscal 2017, 0.9 billion yen in fiscal 2018 and 1.4 billion yen in fiscal 2019. While

keeping an eye on business performance trends, we will continue to implement shareholder returns, including treasury stock acquisition.

ESG strategy

Aiming for sustainable growth through a three-pronged approach of “resources,” “products” and “initiatives”

As our business has become globalized, the number of our transactions with companies in major Western countries that emphasize environment, society and governance (ESG) factors is increasing. In order to maintain and expand these transactions in the future, it is important for us to see things from the same standpoint as these companies and to enhance the quality of our management.

We possess the “resources” (technological strength, production setup, brand power, stable financial base, etc.) to respond to a considerable extent to the demands of society, and we are promoting business activities with them as a source of value creation. The “products” that we develop and manufacture utilizing these resources are contributing to the solution of various social issues. In addition, we have set up a CSR Office and CSR Committee and are making various “initiatives” to manage and reduce the environmental and social load. The CSR Committee, which I chair, has asked members to pay special attention to five points during the current fiscal year: (1) dissemination to suppliers; (2) dissemination to overseas sites; (3) protection of the lives of employees, business partners and customers; (4) betterment of environment-related key performance indicators each fiscal year; and (5) elimination of unfairness. We will continue to supply values contributing to the solution of social issues from the three perspectives of “resources,” “products” and “initiatives” and respond to the demands of society.

Furthermore, GS Yuasa became a signatory to the United Nations Global Compact in April 2018. And, as a signatory company, we are also contributing to the achievement of 12 of the Sustainable Development Goals (SDGs) proposed by the United Nations that are closely related to our Group. We must tackle these missions assiduously over the long term. I believe that each one represents a step toward the goal of the sustainable growth of society and our Group.

Chief Financial Officer and Senior Managing Director
GS Yuasa Corporation

Finance / ESG

Financial policy

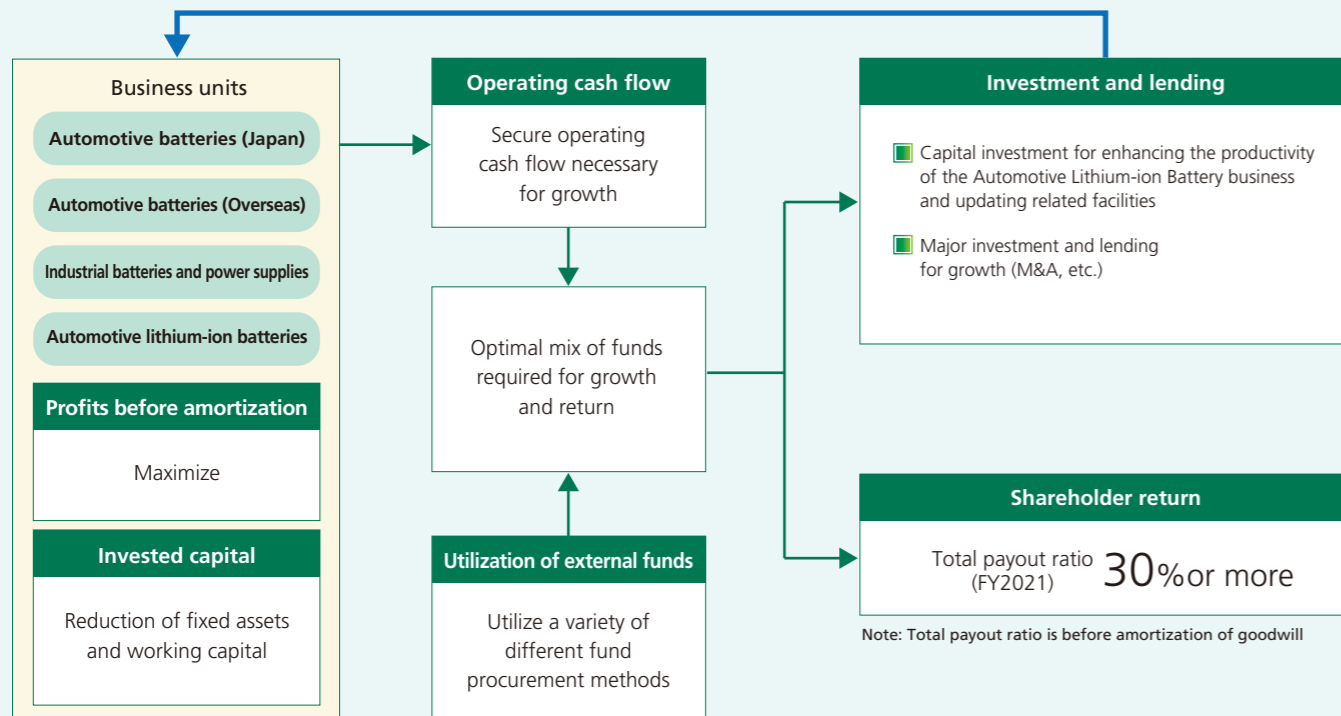
- Emphasis on ROE (target: 8% or more) as a management index, pursue enhanced invested capital efficiency
- Achieve total payout ratio (before amortization of goodwill) of 30% or more (achieve stable dividend payments to shareholders and enhance capital efficiency)

FY2021 targets (Apr. 2021–Mar. 2022)		Fifth Mid-Term Management Plan (3-year total)	
Interest-bearing debt to cash flow ratio*1	Less than 3 years	Operating cash flow	100.0 billion yen
Total payout ratio*2	30% or more	Investment cash flow	-95.0 billion yen
Equity ratio	Maintain at 45% or more	Free cash flow	5.0 billion yen

*1 Interest-bearing debts (including lease obligations)/operating cash flow
 *2 The total return ratio is before amortization of goodwill.

Capital policy

Emphasis on efficient business management to realize medium- to long-term growth
 In addition to maximization of revenue, we will work on ROIC management
 (optimal fixed asset management and reduction of working capital)



Capital investment/depreciation

(Billions of yen)

	Second Mid-Term Management Plan (FY2010 to FY2012) Results (3-year total)	Third Mid-Term Management Plan (FY2013 to FY2015) Results (3-year total)	Fourth Mid-Term Management Plan (FY2016 to FY2018) Results (3-year total)	Fifth Mid-Term Management Plan (FY2019 to FY2021) Plan (3-year total)
Capital investment	92.0	42.5	56.6	95.0
Automotive batteries				
Japan	1.8	3.4	7.9	10.0
Overseas	11.2	12.2	16.9	14.0
Industrial batteries and power supplies	2.8	4.5	4.1	8.0
Automotive lithium-ion batteries	65.5	11.5	8.3	48.0
Others	10.7	10.9	19.4	15.0
Depreciation	34.7	43.9	47.9	48.0
Automotive lithium-ion batteries	12.3	16.1	15.0	14.0

ESG-related initiatives

	Tasks for sustainable growth	Activities and targets
E	Environment: Contribute to sustainability of the global environment as an energy device company	
	<ul style="list-style-type: none"> ■ Development and global sales of environmentally considered products ■ Reduction of environmental burden of business activities 	<ul style="list-style-type: none"> ■ Ratio of environmentally considered products to overall sales: 35% (2021) ■ Group-wide CO₂ emission reduction target: 6%/3 years ■ Group-wide water use reduction target: 8%/3 years
S	Social: Respect for human rights and contribution to society	
	<ul style="list-style-type: none"> ■ Respect for human rights ■ Enhancement of productivity and motivation through human resources development ■ Enhancement of work environments and occupational health and safety ■ Products and information sharing that is reassuring to consumers ■ Contribution to the addressing of societal issues with CSR procurement and reduction of procurement risks 	<ul style="list-style-type: none"> ■ Enhance human rights education and risk management ■ Nurture autonomous-minded human resources and establish groundwork for utilizing diverse human resources ■ Promote measures to improve work-life balance ■ Achieve group-wide quality improvement
G	Governance: Promotion of fair, transparent, and swift group-wide governance	
	<ul style="list-style-type: none"> ■ Respect for international norms and compliance with laws of respective countries ■ Protection of intellectual property ■ Thorough management of confidential information ■ Swift and appropriate management decision-making 	<ul style="list-style-type: none"> ■ Promote compliance education, preparation of legal information ■ Contribute to elimination of counterfeit goods and bolster patent infringement prevention activities ■ Management that is mindful of the corporate governance code

Automotive Batteries

Long-Term Strategy

Long-term vision

Gain market share in the global market, where demand is expected to expand, by leveraging the technology used in eco-friendly vehicles cultivated in Japan

Rebuild optimal global production system

Strengths

- Technological capabilities cultivated through R&D for Japanese automobile manufacturers
- Overwhelming brand power in Asia

Weaknesses

- Price competitiveness against Asian competitors (South Korea, China)
- Low market share in Europe, U.S., and China, where the demand is high

Opportunities

- Stable lead-acid battery demand in ASEAN and expanding demand in emerging markets
- Increase in demand for eco-friendly vehicles using lead-acid batteries

Threats

- Growth restricted by tightening of environmental regulations in each country
- Demand levelling off due to slowing global economy and expansion of sharing businesses

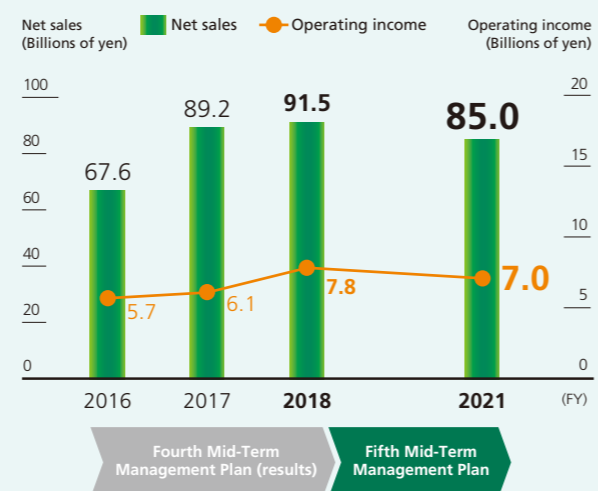
Mid-Term Business Policy (Japan)

Business policy

Aim to shift to a more robust and streamlined business structure through optimal earnings mix

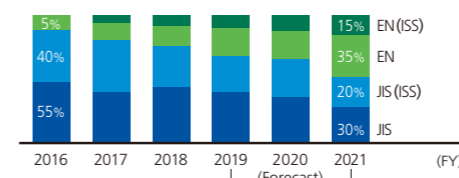
Strategy and important tasks

- Work to optimize market share and earnings by advancing selection and concentration with emphasis on profits
- Fully demonstrate the strengths of the GS Yuasa brand and increase the weighting of high value-added products
- Improve productivity through introduction of labor-saving equipment and pursue cost reduction through streamlining design and production
- Deliver highly satisfying products to customers by continuously developing high performance, high quality products
- Create synergies from transfer of Panasonic's lead-acid battery business



New automobile battery market trends and strategies

Ratio of shipped batteries for new automobiles

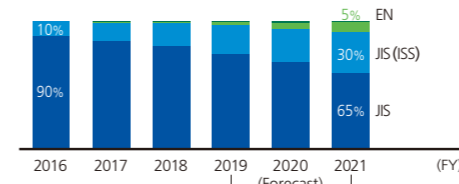


- Increasing number of manufacturers and vehicle models adopting EN compliant batteries
- High ratio of lead-acid batteries for vehicles with start-stop systems including EN batteries
- Ratio of JIS (general) lead-acid batteries declining

Market share for new automobile batteries will increase, as demand for batteries for vehicles with start-stop systems and EN batteries rises

Replacement battery market trends and strategies

Ratio of shipped replacement batteries



- Ratio of lead-acid batteries for vehicles with start-stop systems increasing
- Emergence of demand for EN compliant replacement batteries
- Declining trend for JIS (general) lead-acid batteries along with decline in demand for new automobile batteries

Steadily capturing replacement demand for high-value-added lead-acid batteries for vehicles with start-stop systems in order to improve product mix and achieve high levels of profitability

Tackling expanding demand with robust technology, quality and product lineup

GS Yuasa's lead-acid starter batteries are highly regarded by customers for their technological strength and quality; they have achieved the second largest share in the world for automobile use and the top share for motorcycle use. Furthermore, our overwhelming brand power in Asia, where the market is forecast to grow in the future, is an enormous strength. In Japan, the market for lead-acid starter batteries is expected to peak in fiscal 2020 and then gradually decline. In these circumstances, we will endeavor to respond to customer needs with a substantial lineup centering on high value-added products and achieve an optimum revenue mix. In addition, we will promote total optimization of our production system, aim to achieve further cost reduction, and build an optimum supply regime. In emerging markets around the world, meanwhile, demand is increasing, so even in 2035 demand is forecast to exceed the present level. While maintaining our market position in Asia based on GS Yuasa's overwhelming brand power, technological strength and quality, we will promote the sale of high value-added products. We will also channel our efforts toward expanding sales in untapped regions and, utilizing the advantages of our global network of production sites, promote the building of an optimum supply setup throughout the Group. As well as these efforts, looking toward the future, we will promote the market development and deployment of 12V lithium-ion batteries in response to global environmental considerations and automobile electrification.

Kei Nishida

Executive Vice President
GS Yuasa Corporation
Executive Vice President
(in charge of management strategy and automotive battery business)
GS Yuasa International Ltd.



Automotive Batteries

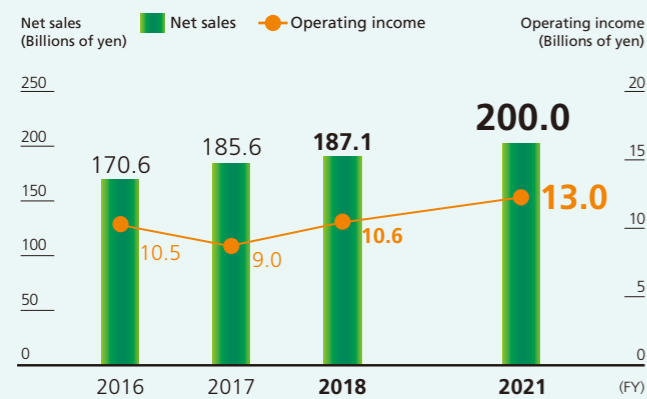
Mid-Term Business Policy (Overseas)

Business policy

Aim to secure profits through selection and concentration of production and sales

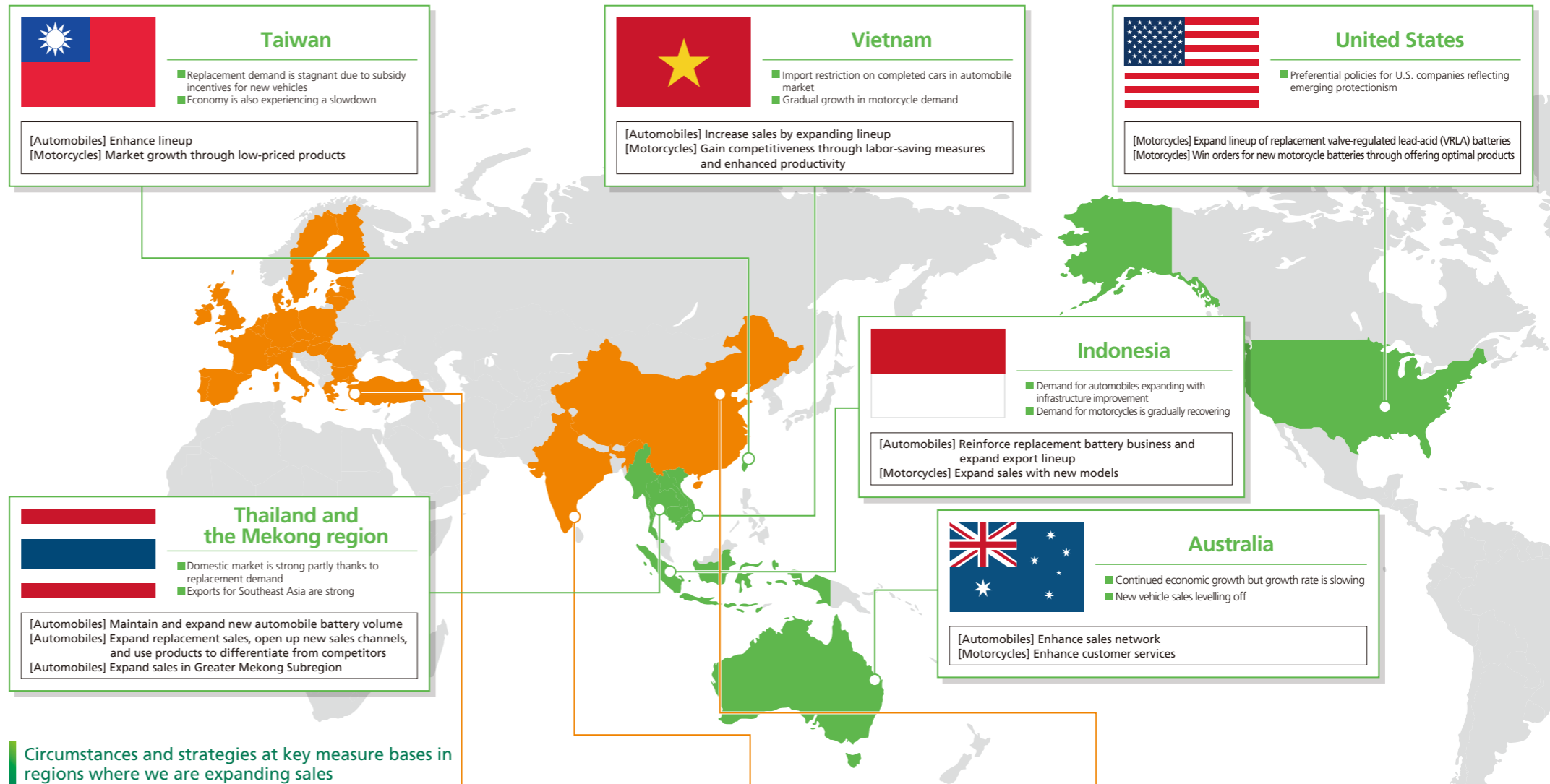
Strategy and important tasks

- Work to enhance profit ratio by introducing new products and building an optimal production structure, while maintaining our share in regions with high market shares
- In regions with low market share, ensure sales expansion through enhancement of product line-up by building a sales and service framework
- Expand into each untapped region strategically, leveraging existing production sites

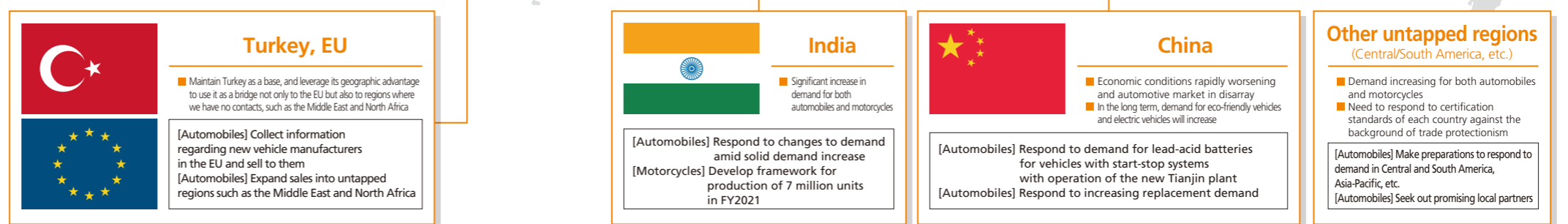


* Some subsidiaries which previously were included in the "Automotive Batteries (Overseas)" category have been changed to the "Industrial Batteries and Power Supplies" segment from fiscal 2019.

Circumstances and strategies at key measure bases in regions where we are pursuing profits



Circumstances and strategies at key measure bases in regions where we are expanding sales



Industrial Batteries and Power Supplies

Long-Term Strategy

Long-term vision

Improve profitability by expanding sales of high value-added products and services utilizing IoT

Expand sales of lithium-ion batteries in environment and energy field such as renewable energy applications

Expand overseas business by expanding local production for local consumption-type business

Strengths

- High market share and brand power in Japan
- Extensive product lineup
- Enhanced sales and service structure

Weaknesses

- Global expansion
- Ability to respond to market changes

Opportunities

- Expansion of renewable energy
- Advance of disaster mitigation and BCP measures
- Strengthening of environmental and emission regulations
- Expansion of utilization of AI and IoT technologies

Threats

- Advances in replacement of lead-acid batteries with lithium-ion batteries
- Intensifying market competition due to entry by companies in other industries and manufacturers from China and South Korea
- Raw materials and distribution cost rises

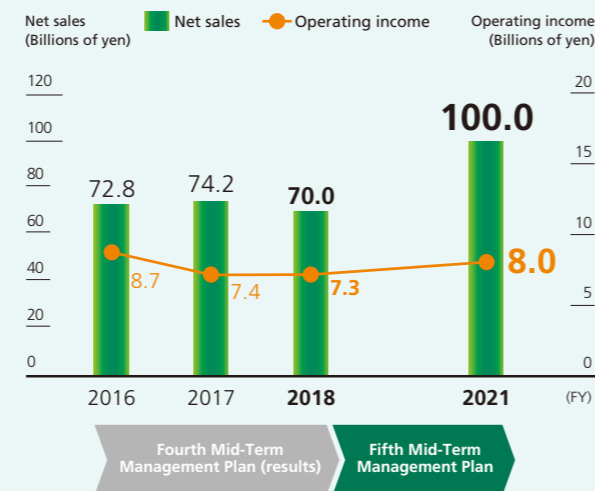
Mid-Term Business Policy

Business policy

Lay the groundwork for transition to a global energy solutions company that contributes to societal and environmental safety and security

Strategy and important tasks

- Introduce high value-added products and services to ensure survival in existing fields
- Secure market position by making a strategic shift to new businesses in the environment and energy fields
- Leverage the ability, cultivated in the domestic market, to propose products, technologies, and services, in order to develop and nurture businesses in overseas markets that are optimized for each region



* Some subsidiaries which previously were included in the "Automotive Batteries (Overseas)" category have been changed to the "Industrial Batteries and Power Supplies" segment from fiscal 2019.

Existing business to shift from *Mono* (products) to *Koto* (services)

Enhance after-sales service including maintenance

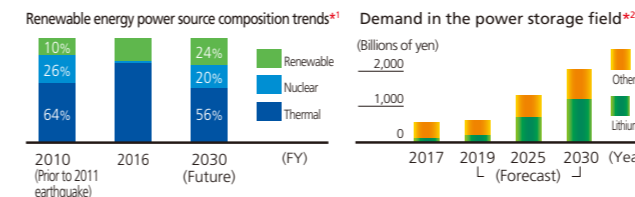
From before to after, GS Yuasa Group's integrated system allows us to achieve long-term stability in securing revenue



- While demand in Japan for backup batteries and power supply is stable mainly for replacements, we cannot expect large growth
- Securing soundness in preparation for power outages from disasters and other causes is needed
- Higher needs for reducing the burden of maintenance

Provide services which utilize IoT and AI in our shift from *Mono* (products) to *Koto* (services)

Strategy for industrial lithium-ion batteries



- For the expansion of renewable energy, stabilizing the electric power system is a challenge
- Demand for self-consumption to increase as Feed-in Tariff System for Renewable Energy (FIT) ends

Expand sales of industrial lithium-ion batteries primarily in the environment and energy fields (industrial/residential)

*1 Source: Agency for Natural Resources and Energy, Measures for Realizing the "2030 Energy Mix" Policy
 *2 Source: Fuji Keizai, Future prospects for energy, large secondary batteries, and materials 2018 - Motive power, electric power storage, and home appliances fields edition

Accelerating growth in the environment and energy fields and overseas

Our industrial battery and power supply business, including backup batteries and power supply devices, is maintaining stable sales and a high share in the field of social infrastructure in Japan through its core technological strength, capacity to collaborate with customers, outstanding sales and service arrangements, and a substantial product lineup. Meanwhile, in the field of environmental infrastructure, which can be expected to achieve significant growth, demand for renewable energy is increasing against the background of the government's target of achieving a balanced energy mix by 2030, the promotion of environmental, social and governance (ESG) factors, and so on, so we are channeling efforts into the expanded sale of industrial lithium-ion batteries. Furthermore, there has been a change in business recently from *Mono* (products) to *Koto* (services). Since customer needs for repair and maintenance services utilizing the Internet of Things and artificial intelligence are on the rise, we will strengthen our presence in this area too. Meanwhile, operations directed at overseas markets are accelerating as well. Such business development faces a severely competitive environment, but marketing activities putting our technological strength to the fore are being well received by customers, so I think we can be optimistic here. In the development of the Fifth Mid-Term Management Plan, we will lay the foundations for long-term plans by letting customers know about our superiority over rivals from the perspective of quality in the broad sense, meaning not only basic product quality but also marketing quality, service quality, environmental quality, safety quality and social quality.

Masaru Sawada
 Managing Director
 (in charge of industrial battery and power supply business)
 GS Yuasa International Ltd.



Automotive Lithium-ion Batteries

Long-Term Strategy

Long-term vision

Establish our position and improve profits through enhancement and evolution of alliances with reliable partners

Promotion of hybrid electric vehicles and 12V lithium-ion batteries

Expand on successes in development of high capacity batteries for plug-in hybrid electric vehicles and other electric vehicles into industrial applications

Strengths

- Stable supply of lithium-ion batteries for hybrid electric vehicles
- Advance expansion into 12V lithium-ion battery market
- Extensive track record of supplying to Japanese and European manufacturers

Weaknesses

- Stable material procurement capability
- Ensuring management resources that reflect the growth of lithium-ion battery market
- Competitiveness against rival manufacturers of high capacity lithium-ion batteries

Opportunities

- Environmental regulations such as ELV Directive in Europe and NEV in China
- Accelerated offering of full-line of electric vehicles (EVs, PHEVs, HEVs)

Threats

- Intensified competition in the lithium-ion battery industry
- Increasing negotiation power of suppliers
- Rise of alternative lithium-ion batteries (all-solid-state batteries)

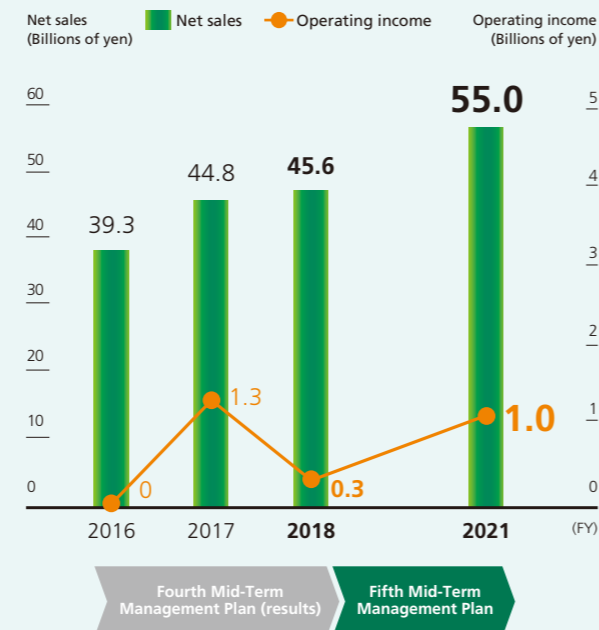
Mid-Term Business Policy

Business policy

Build the foundation for a differentiation strategy with a view to future business expansion by grasping changes in the business environment in advance

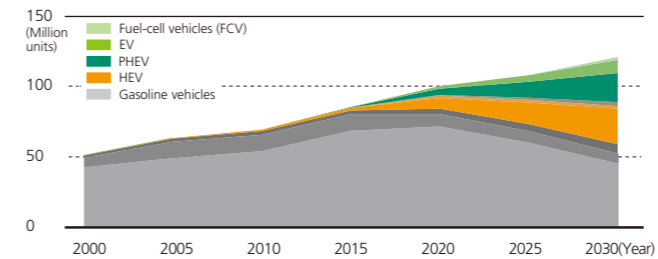
Strategy and important tasks

- Focus on lithium-ion batteries for hybrid electric vehicles primarily for Japanese manufacturers, 12V lithium-ion batteries for European manufacturers, and industrial-use lithium-ion batteries
- Strengthen coordination with existing customers for long-term dealings involving lithium-ion batteries for plug-in hybrid electric vehicles and other electric vehicles
- Promote development of future technologies that will differentiate us from competitors



Strategy for HEV-use lithium-ion batteries

Global market forecast for automobiles



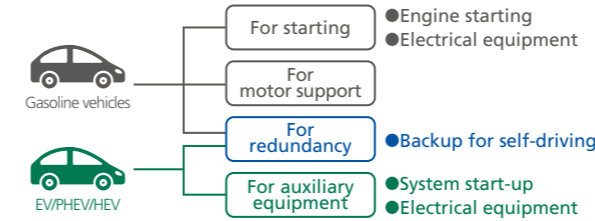
Source: International Energy Agency, Energy Technology Perspectives 2015

- Japanese automobile manufacturers are focusing on hybrid electric vehicles
- Tightening of automobile mileage standards in various countries through introduction of Corporate Average Fuel Economy (CAFE) standards

Focus on lithium-ion batteries for hybrid electric vehicles requiring high input/output performance by utilizing our technical strength

Strategy for 12V lithium-ion batteries

The application and function of 12V lithium-ion batteries



- Considering whether to introduce starting-use lithium-ion batteries in the European region, where they are highly conscious of reducing the burden on the environment
- The development of CASE for the automotive industry

Expand sales of 12V lithium-ion batteries to European automobile manufacturers, and meet the new demand brought by the development of CASE

Challenging the target of making lithium-ion batteries a pillar of our business on a par with lead-acid batteries

As the introduction of electric vehicles gains momentum in China, Chinese battery makers are getting stronger as well, and the competition among Japanese, Korean and Chinese battery makers is growing increasingly intense. Rival companies include giant enterprises in the electric and chemical fields. But as a specialist battery maker with excellent human resources and a wealth of experience, GS Yuasa will survive the competitive environment by taking the lead technologically. In our Fifth Mid-Term Management Plan we place much emphasis on batteries for hybrid electric vehicles, an area where we can display our technological strength. We will also make efforts to ensure a solid share in the future when lithium-ion batteries are introduced in the field of 12V batteries, which at the moment is one of the main markets for lead-acid batteries. Furthermore, looking beyond the Fifth Mid-Term Management Plan, we will make efforts to polish our proprietary technologies and further distinguish ourselves from other companies so that lithium-ion batteries increase their earning power and become a pillar of our business on a par with lead-acid batteries. GS Yuasa has expanded its business, centered on lead-acid batteries, for more than a century since the founding of our predecessor. Today, when once-in-a-century technological innovation is taking place in the automotive field, we must look forward to the next 100 years and meet the challenge of expanding our automotive lithium-ion battery business.

Ryoichi Okuyama
Director (in charge of lithium-ion battery business)
GS Yuasa Corporation



Others

Mid-Term Business Policy

Business policy

Contribute to the building of new societal infrastructure through batteries with the highest level of performance and quality

Strategy and important tasks

- Work to provide stable supply of lithium-ion batteries for submarines and enhance their quality
- Expand sales of lithium-ion batteries for aircraft and satellites by improving reliability and durability

Use in extreme environments is proof of high technological capabilities and reliability



The Greenhouse Gases Observation Satellite IBUKI-2 (GOSAT-2)



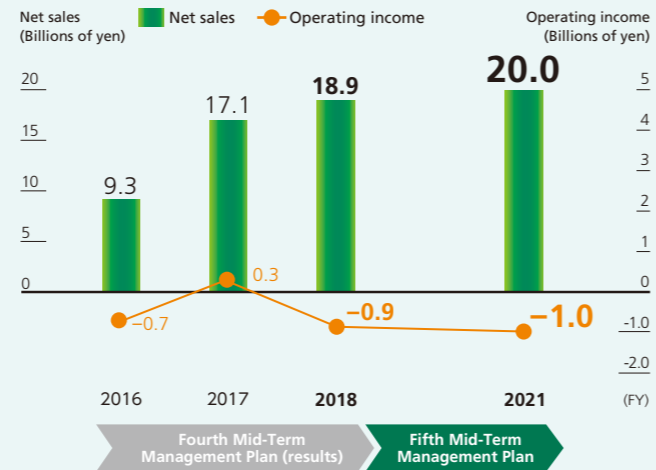
Boeing 787 Dream Liner



SS SORYU Class

Extreme environments
from deep sea to outer space

Pursue further improvements to technological capabilities by providing storage batteries able to continue supplying power even under harsh conditions



Performance in FY 2018

GS YUASA Report 2019

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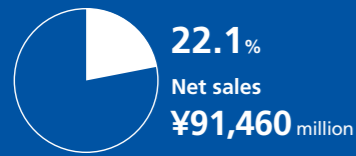
The GS Yuasa Group's operating structure comprises four business divisions—Automotive Batteries (Japan), Automotive Batteries (Overseas), Industrial Batteries and Power Supplies, and Automotive Lithium-ion Batteries—as well as other businesses not included in these segments. Focusing on lead-acid batteries, lithium-ion batteries and various power supply devices, we develop and manufacture products that meet social needs.

Here we present an overview of conditions in fiscal 2018 through pages showing market trends and results for each business sector, as well as reports on R&D conditions in each business field.

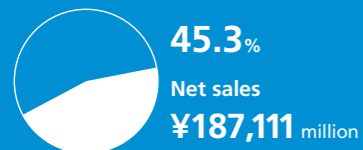
Automotive Batteries (Japan)

Business operation

Automotive Batteries (Japan)



Automotive Batteries (Overseas)



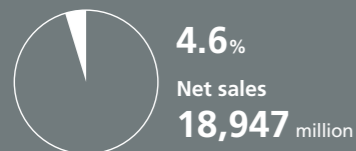
Industrial Batteries and Power Supplies



Automotive Lithium-ion Batteries

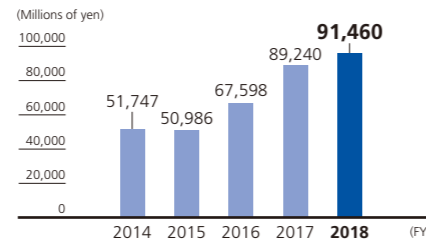


Others

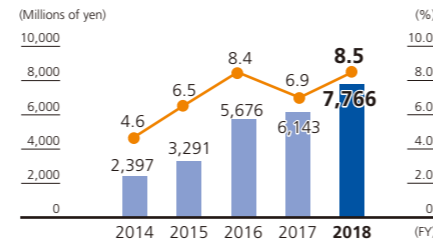


Financial performance

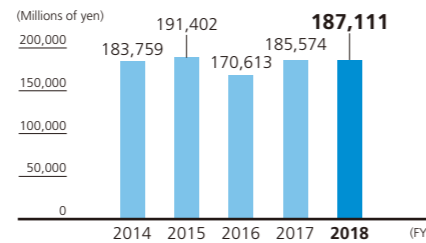
Net sales



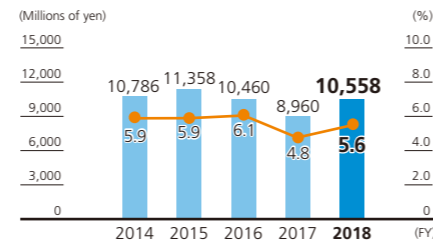
Operating income/Operating Income Ratio



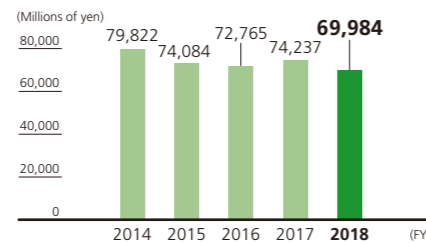
Net sales



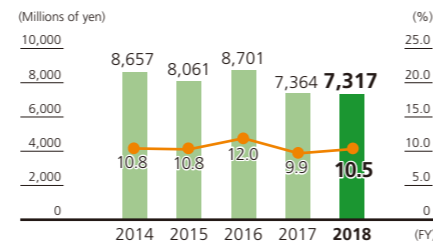
Operating income/Operating Income Ratio



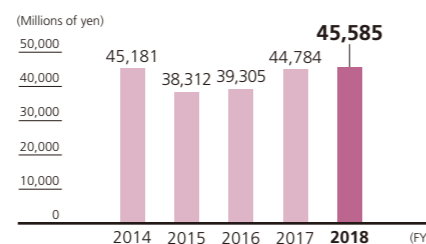
Net sales



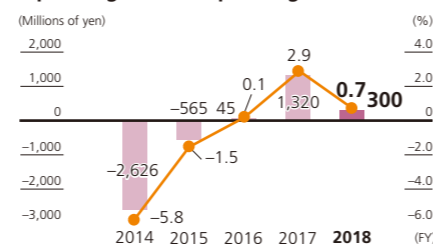
Operating income/Operating Income Ratio



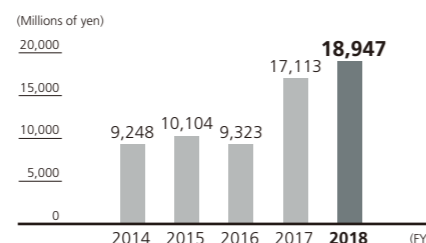
Net sales



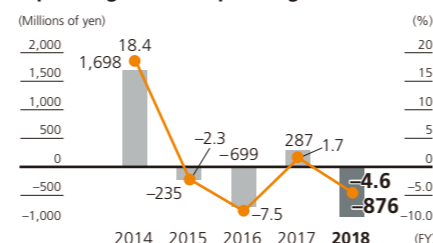
Operating income/Operating Income Ratio



Net sales



Operating income/Operating Income Ratio



Fiscal 2018 (fiscal year ended March 31, 2019)

Expanding sales of EN batteries and batteries for vehicle with start-stop systems which are increasingly in demand

Net sales generated by the domestic automotive battery business in fiscal 2018 totaled 91,460 million yen (up 2,219 million yen year on year), and operating income was 7,766 million yen (up 1,622 million yen year on year).

Main reasons for the increase were a solid demand for European Norm (EN) compliant batteries for use in new vehicles as well as replacement lead-acid batteries for use in vehicles with start-stop systems. Profits increased due to the pass-through effect of adjusted sales prices reflecting the lead price rise.

Major initiatives in fiscal 2018 on the organizational side included a further strengthening of the reorganization (unification of domestic and overseas divisions) implemented in fiscal 2017, which further boosted our capability to respond to customer demands. On the sales side, we strengthened our supply capability of replacement lead-acid batteries destined for use in vehicles with start-stop systems, and we also focused on EN batteries which are being adopted by more manufacturers and for more car models. We were able to improve the operating income ratio through intensified collaboration with GS Yuasa Energy Co., Ltd., established after the acquisition of Panasonic Corporation's lead-acid battery business. We also launched initiatives aimed at creating a synergy effect.

Market outlook and projection for fiscal 2019 (fiscal year ending March 31, 2020)

Responding to increased demand for EN batteries and for lead-acid batteries for vehicles with start-stop systems both in the new car sector and the replacement sector

In the new car market, an increasing number of manufacturers are adopting EN batteries for more and more models, and the use of EN batteries is also on the rise in the area of lead-acid batteries for vehicles with start-stop systems. GS Yuasa has developed EN batteries ahead of competitors. We have successfully expanded our lineup, and our products are used in many vehicles equipped with EN batteries. We will continue to meet the rising demand also in future.

On the battery replacement market, sales of lead-acid batteries for vehicles with start-stop systems are increasing, and EN batteries are beginning to be used in this area as well. In anticipation of the increase in the number of start-stop type vehicles equipped with EN batteries and the associated increase in replacement demand, we have adopted the latest technology know-how from our R&D for new car manufacturers. As a result, we are offering replacement EN batteries for start-stop systems that are suitable both for use in gasoline cars and in hybrids (HEV).

Considering that the increase in earnings for fiscal 2018 was partly due to the price drop for lead, our business forecast for fiscal 2019 is as follows: net sales of 90 billion yen (down 1,460 million yen year on year), operating income of 6.0 billion yen (down 1,766 million yen year on year).

Automotive Batteries (Overseas)



Fiscal 2018 (fiscal year ended March 31, 2019)

Income increases due to pass-through of lead price rise despite decreased sales

Partly due to the pass-through effect of adjusted sales prices reflecting the lead price rise, overseas net sales generated by the automotive battery business in fiscal 2018 totaled 187,111 million yen (up 1,536 million yen year on year), and operating income was 10,558 million yen (up 1,598 million yen year on year).

While the overall sales volume of lead-acid batteries for automobiles increased, there was a decline mainly in China and the ASEAN region on a volume basis. Sales figures for lead-acid batteries for motorcycles increased in Thailand and Indonesia but shrank in China and Vietnam. However, in the long term, the trend of economic growth is steadily progressing, and we are considering the decrease in the current period to be temporary.

One of our main initiatives in fiscal 2018 in the field of lead-acid batteries for automobiles was aimed at strengthening the supply capacity of batteries for vehicles with start-stop systems, where demand is increasing. Needs in this area are changing, in response to stricter exhaust gas regulations in China, the world's largest market. We therefore increased the production capacity of the Tianjin plant. We also established a new site in Myanmar to foster a sales expansion of lead-acid batteries in the Mekong region. In the field of lead-acid batteries for motorcycles, we implemented a production system to meet the growing demand in India, a huge market.

* Some subsidiaries which previously were included in the "Automotive Batteries (Overseas)" category have been changed to the "Industrial Batteries and Power Supplies" segment from fiscal 2019.

Market outlook and projection for fiscal 2019 (fiscal year ending March 31, 2020)

Expanding sales by introducing products matched to market needs and enhancing services

Although there is a slight slowdown, the global automobile market continues to expand. In the first half of the 2020s, the number of new cars sold worldwide is expected to top 100 million, and demand is likely to grow in emerging countries and regions such as Southeast Asia, Africa, India and Brazil. The GS Yuasa Group is bolstering the number of its global production and sales sites. In January 2019, a new plant for automotive lead-acid batteries went into operation, run by our equity-method affiliate Inci GS Yuasa Aku Sanayi ve Ticaret Anonim Sirketi based in Turkey. The annual production capacity is planned to be up to 2 million units. By 2022, we aim to produce 6 million units annually in conjunction with existing plants. The geographical location in Turkey not only gives access to the EU but also can serve as a bridge to as yet undeveloped areas such as Middle East and North Africa. By further strengthening the cooperation between headquarters and our various sites, we are building a framework that will help to expand sales of products and services by swiftly responding to evolving needs around the world.

Our business forecast for fiscal 2019 is as follows: net sales of 188 billion yen (up 889 million yen year on year), operating income of 9.5 billion yen (down 1,058 million yen year on year).

Industrial Batteries and Power Supplies



Fiscal 2018 (fiscal year ended March 31, 2019)

Strong sales of lead-acid batteries for forklifts, but sales of batteries and power supplies for power backup declined

Net sales in the industrial battery and power supply business in fiscal 2018 totaled 69,984 million yen (down 4,253 million yen year on year), and operating income was 7,317 million yen (down 47 million yen year on year).

Sales of lead-acid batteries for electric forklifts were solid, but sales of backup power supplies, which are an important pillar of earnings, decreased due to a temporary reduction in capital investment in Japan. Other reasons for the decline included the transfer of our special machinery business. In terms of profits, we were able to maintain almost the same figures as for the previous year, due to the pass-through effect of adjusted sales prices reflecting the lead price rise.

In fiscal 2018, we received an order to erect one of the world's largest wind power storage battery facilities in Toyotomi-cho, Hokkaido, to mitigate power output fluctuations. Construction work on this project will begin in fiscal 2020, with the start of operations planned for fiscal 2023.

* Some subsidiaries which previously were included in the "Automotive Batteries (Overseas)" category have been changed to the "Industrial Batteries and Power Supplies" segment from fiscal 2019.

Market outlook and projection for fiscal 2019 (fiscal year ending March 31, 2020)

Promote business expansion and further increase productivity

The social infrastructure in Japan is well developed, and the market for power supply backup equipment is stable. In order to improve profitability in such an environment, it is necessary to enhance after-sales service including maintenance. To strengthen the implementation of the *Mono-Koto Zukuri* process of creating products and services while harnessing AI and the IoT, we shall build strong links between production and sales sites also on overseas markets, thereby intensifying our business expansion with a global focus.

In the renewable energy market, the end of the fixed feed-in tariff (FIT) system means that demand for storage batteries to be installed at consumers' homes for self-consumption will increase. At the same time, demand for storage batteries will also be driven by the need to stabilize renewable energy installations which are affected by natural conditions such as the weather.

Our business forecast for fiscal 2019 is as follows: net sales of 87 billion yen (up 17,016 million yen year on year), operating income of 7.5 billion yen (up 183 million yen year on year).

Automotive Lithium-ion Batteries



Fiscal 2018 (fiscal year ended March 31, 2019)

Sales of lithium-ion batteries for plug-in hybrids vehicles (PHEV) increase

Net sales in the automotive lithium-ion battery business in fiscal 2018 totaled 45,585 million yen (up 800 million year on year), and operating income was 300 million yen (down 1,020 million yen year on year).

The results for lithium-ion batteries for HEVs dropped temporarily, but brisk sales of PHEV models using the products of Lithium Energy Japan and an overall expansion of sales to Japanese auto manufacturers contributed to the sales volume increase.

The reasons for reduced operating income are a rise in raw material prices and the fact that R&D expenses have shifted from non-operating expenses to SG&A expenses due to the dissolution of the Lithium Energy and Power joint venture. If one excludes this factor, there is a de facto increase.

Furthermore, we are engaged in the construction of a 12V lithium-ion starter battery plant in Hungary, which is scheduled to start operating in fiscal 2019. For the time being, the starter batteries will be manufactured using lithium-ion batteries (cells) made in Japan, but for the future we are also considering manufacturing cells at this factory and expanding to other applications.

Market outlook and projection for fiscal 2019 (fiscal year ending March 31, 2020)

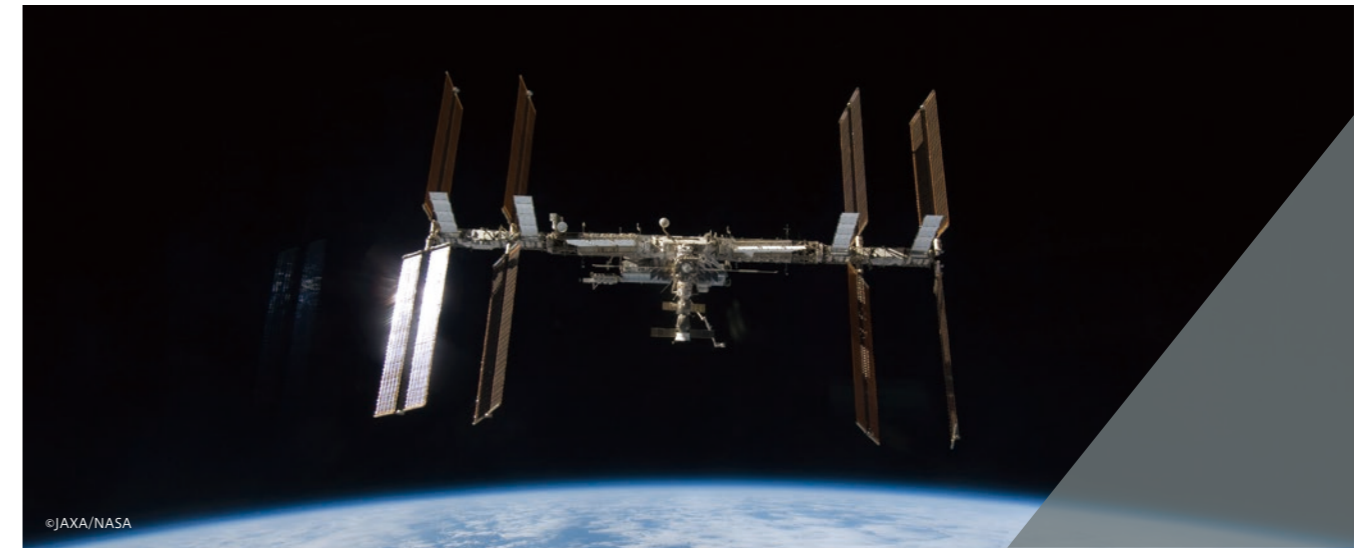
Increase production capacity to expand sales in Europe with its keen awareness of reducing environmental burden

In the eco-friendly vehicle market, electric vehicles (EVs) and PHEVs will grow due to vehicle type regulations in various countries such as NEV in China and ZEV in North America. However, because of their good balance between environmental performance and price, sales of HEVs mainly from Japanese manufacturers are expected to increase in China, Europe and North America. Therefore, we will focus on lithium-ion batteries for HEVs with excellent high input/output performance, harnessing our advanced technological capabilities.

In the area of 12V lithium ion starter batteries, manufacturers in Europe where concern about reducing environmental burden is high are considering switching from lead-acid to lithium-ion. We believe that we can capture a market share by delivering 12V lithium-ion starter batteries before the ELV Directive in Europe comes into force. We plan to start shipments mainly to luxury car manufacturers during this fiscal year.

Our business forecast for fiscal 2019 is as follows: net sales of 47 billion yen (up 1,415 million yen year on year), operating loss of 1 billion yen (down 1.3 billion yen year on year). This reflects the temporary increase in costs related to the startup of our 12V lithium-ion batteries business in Hungary.

Others



Fiscal 2018 (fiscal year ended March 31, 2019)

Strong sales of lithium-ion batteries for special applications

Net sales from our other businesses in fiscal 2018 totaled 18,947 million yen (up 1,833 million yen year on year), and operating loss was 876 million yen (down 1,163 million yen year on year).

Major sources of revenue were lithium-ion batteries for special applications such as submarines and aircraft. Operating income on the other hand declined, due to increased R&D costs.

In the space sector, GS Yuasa supplied lithium-ion batteries destined for the International Space Station (loaded on the Kounotori 7 transfer vehicle), as well as for the Greenhouse Gases Observing Satellite Ibuki 2 and the Epsilon-4 Launch Vehicle. The batteries are currently performing their assigned tasks in space. Our advanced technology and superior reliability have been recognized as suitable even for use in extreme environments.

Market outlook and projection for fiscal 2019 (fiscal year ending March 31, 2020)

Increased investing in basic research with a view to the future

Japan's defense spending shows a rising trend, and we expect stable demand for lithium-ion batteries for submarines and similar products in fiscal 2019 as well. We will work to stabilize our existing business operations and promote intensive efforts to further expand growth.

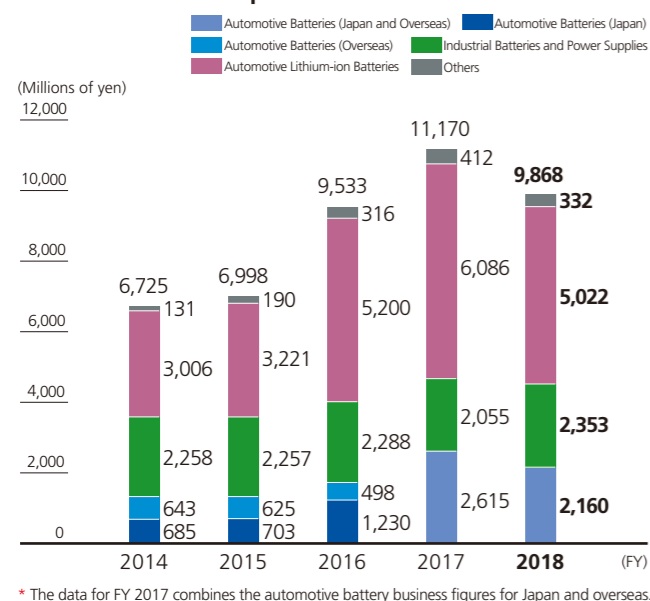
Our lithium-ion batteries for satellites have garnered high praise such as receiving the best supplier award from Boeing, and business in this area is expected to remain stable.

For fiscal 2019, we are forecasting net sales of 18 billion yen (down 947 million yen year on year). The expected decline is mainly due to increased costs for basic research.

Actively Investing in New Technology and New Product Development

The GS Yuasa Group carried out proactive research and development covering basic research through to the development of products and manufacturing technologies for every business segment: Automotive Batteries (Japan and overseas), Industrial Batteries and Power Supplies, Automotive Lithium-ion Batteries and other businesses.

Research and development costs



Automotive Batteries (Japan)

In the automotive lead-acid battery field in Japan, adoption of our EN batteries for European vehicles manufactured by Japanese manufacturers is increasing, and we expanded the lineup of the ECO.R ENJ series compliant with those standards by adding the start-stop system ("idling stop system": ISS) compatible LN2-IS, LN3-IS and LN5-IS models last year. We updated the environmentally-friendly ECO.R by actively using recycled materials, enhanced durability against deterioration from low-level electrical discharge, which is increasing as a result of changes in riding formats such as vehicles used primarily for short trips, as well as changes in vehicle control. We also improved durability against high temperatures in engine compartments, which is of concern as a result of increased temperatures due to climate change and higher-power engines.

In the area of lead-acid batteries for Japanese-market motorcycles, we are engaged in developing new technologies for leisure bikes, general commuter bikes and others. In the motorbike sector also, interest in eco-friendly vehicles, such as vehicles with start-stop systems, is rising. The high reliability and excellent charge acceptance performance of our batteries make them preferred choices for such applications as well. Additionally, we are developing lead-acid batteries for ISS vehicles as next-generation eco-friendly vehicles.

Automotive Batteries (Overseas)

In the field of automotive lead-acid batteries for overseas markets, we are developing products and manufacturing technologies for charge control vehicles and vehicles with start-stop systems produced and sold overseas. At Turkey's Inci GS Yuasa Aku Sanayi ve Ticaret Annimim Sirketi which was incorporated in 2015, we are developing lead-acid batteries for cars with start-stop systems in the European market. We are also developing auxiliary batteries for hybrid and electric vehicles produced and used overseas and will roll them out to markets in stages.

For the overseas motorcycle market, we developed medium-capacity class valve-regulated lead-acid batteries for medium-sized motorcycles, responding to the expanding production of such motorcycles for export in Southeast Asia, and are conducting phased market deployment. We also developed valve-regulated lead-acid batteries for commuter motorcycles and motorcycles with start-stop systems in the Indian market, which is expected to grow substantially. This has boosted our product lineup and has resulted in orders for use in new bikes. Additionally, we are developing valve-regulated lead-acid batteries with special exhaust structures by adapting motorcycle lead-acid battery technologies for use in European luxury car system startup and backup batteries and aim to introduce them to the European repair market.

Industrial Batteries and Power Supplies

In the field of industrial lead-acid batteries, we are working to expand our SLR line of stationary lead-acid batteries for large-capacity power storage systems, featuring super long life and world-leading cycle life performance. In addition to the existing 1000 Ah SLR-1000, we introduced the SLR-500 model in fiscal 2017 and SLR-50 model in fiscal 2018. We also developed an additive that significantly improves the performance of lead-acid batteries for electric forklifts. This was brought to market in products in fiscal 2018.

With regard to the overseas stationary lead-acid battery segment, in order to respond to robust demand in communications markets in Southeast Asia, we developed industrial lead-acid batteries and began production at our plant in Vietnam in fiscal 2017. To expand the lineup, we began new product development of four types of 2V batteries and a 12V front terminal type battery in fiscal 2018 and plan to begin mass production in the first half of fiscal 2019.

It can be installed in semi-self checkout registers, which are rapidly increasing, and the design standard use time of the UPS unit has been increased by eight years compared to earlier products, making reductions in running costs possible. We supplemented the product lineup with a compact and lightweight 200VA output uninterruptible power supply for cable television use with a lithium-ion battery. This new product saves approximately twice as much energy as earlier lead-acid batteries and weighs less, enabling it to be installed on a messenger wire, eliminating the need for dedicated poles and enhancing serviceability. In addition, we developed the new DATAWINDOW-S Ver. 3, a battery monitoring system that automatically measures voltage, internal resistance and temperature of industrial valve-regulated lead-acid batteries for early detection of abnormalities and signs that a battery is approaching its useful lifespan to facilitate preventive maintenance of battery systems. The sensor unit that performs measurement is directly connected to the battery and is equipped with a control unit that performs management via wireless communication, improving installation workability and convenience. In addition, network monitoring has been enhanced to support distributed monitoring.

In the field of industrial lithium-ion batteries, the high output type LIM 25H-8 module that supports instant high-current charge and discharge is being used in dockside gantry cranes and automated guided vehicles, etc., saving energy and reducing emissions, and thereby contributing to a reduction of environmental impact.

In the field of lighting, we are expanding the lineup of HID alternative LED lamps, emergency lighting and other products.

In the field of environment-related equipment, we have developed membranes with less clogging and inexpensive membranes for membrane bioreactors (MBR) and are working on expanding sales to the Asian market. We successfully increased the size of electrolytic diaphragms for plating use and began sales for large plating devices.

Automotive Lithium-ion Batteries

The basic research on lithium-ion batteries included studies aimed at increasing the reliability, safety and energy density of medium and large-sized batteries. To improve the performance of lithium-ion batteries, we explored materials for next-generation positive and negative electrodes and improved their capabilities. We also conducted research on post lithium-ion batteries.

With regard to automotive lithium-ion batteries, we are engaged in enhancing mass production capabilities of products for EVs, PHEVs and HEVs. We are widening our product palette with a focus on even better reliability and higher safety. We are also developing 12 V lithium-ion batteries.

Others

Our other business activities include research and development of lithium-ion batteries for aircraft and spacecraft applications and research on post lithium-ion batteries.

In the aviation sector, we have supplied lithium-ion batteries used in the Boeing 787 aircraft. In the space exploration sector, our lithium-ion batteries for rocket applications have been adopted for the liquid fuel rockets H-II A, H-II B and Epsilon. In December 2016, the H-II Transfer Vehicle Kounotori 6 began transportation of lithium-ion batteries to be used for supplying power to the International Space Station.

GS Yuasa Succeeds in Using Silicon-metal Electrode Development to Improve the High Energy Density Technology in Lithium-ion Batteries

GS Yuasa Corporation has both developed high energy density technology as well as longer lifecycles for silicon metal-based negative electrodes. Both of these properties have posed many challenges with respect to the commercialization of large batteries. As a result, the energy density of batteries, the size of which are used in actual electric vehicles, has been successfully increased by about three times compared to that of traditional lithium-ion batteries.

The silicon metal used in the negative electrode material has an extremely high theoretical capacity (4200 mAh/g), and there is an abundance of silicon available. Therefore, much research has been conducted on silicon metal as a new material for lithium-ion batteries. However, since silicon metal undergoes an extremely large change in volume of approximately 400% in conjunction with the charge-discharge cycle, degradation including pulverization*1 and isolation*2 occurs as the battery is repeatedly charged and discharged.

As a result, such batteries have low coulombic efficiency and poor cycling performance, and therefore practical application of silicon metal electrodes has been considered

a difficult challenge, particularly for large batteries used in electrically powered vehicles, which must perform for long periods of time. To address this challenge, GS Yuasa has succeeded in improving coulombic efficiency and cycling performance by finding the optimal particle size and electrode structure of electrodes using silicon metal.

This silicon metal electrode is technology that can be applied to all-solid-state batteries, for which future technological innovation and more widespread use are expected going forward. Going forward, GS Yuasa will further improve the cycling performance of this silicon metal electrode, with the aim of applying it in electrically powered vehicles by around 2025.



External view of prototype cell

*1 A phenomenon in which strains caused by the expansion and contraction of a particle develop into cracks, and the particle is broken into smaller.
 *2 A phenomenon in which the active material in the electrode stops contributing to charging and discharging reaction due to electrolyte degradation, electrode expansion, etc.

Highlights of technology improvements

Higher initial coulombic efficiency and cycling performance improvement by selecting optimal particle size of silicon metal

When the particle size is small, the initial coulombic efficiency is low, and when the particle size is large, cycling performance is weak due to the fact that pulverization becomes prominent. GS Yuasa found that applying silicon metal with an optimal particle size improves these two properties.

Higher discharge properties by combining various conductive additives

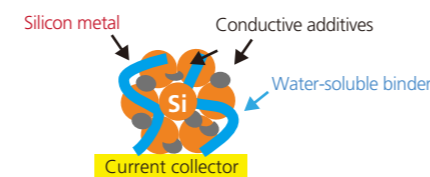
Normally, a single type of conductive additive is used in an electrode. However, in the case of a silicon metal electrode, the electrode formability improved by using multiple conductive additives. Furthermore, it became clear that there was a higher level of discharge due to the improved conductivity of the electrode.

Improved suitability for mass production due to the application of a water-soluble binder

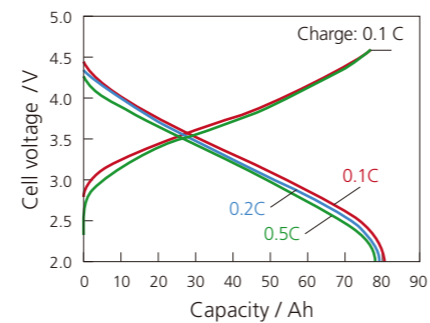
In order to produce silicon metal electrodes, processes not suitable for mass production sometimes arise, such as adding high temperature heat treatment in an inert atmosphere,*3 but by applying a water-soluble binder, the process has been simplified. As a result, we succeeded in finding the electrode structure which is highly-suitable for mass production while still maintaining a high level of binding strength.

*3 A vacuum state, a state of reduced pressure, or a state in which there are many inactive gases such as nitrogen and argon in the surroundings.

Schematic diagram of silicon metal electrode



Charge-discharge curve for high capacity lithium-ion battery using silicon metal



ESG

GS YUASA Report 2019

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GS Yuasa believes that the practice of our corporate philosophy of contributing to “people, society, and the global environment through innovation and growth” will lead to the sustained growth of our business.

Here we report on our environment, social and governance efforts in fiscal 2018. During the period of our Fifth Mid-Term Management Plan, we aim to establish a business process that includes issues of corporate social responsibility in our business strategy, enhance the quality of our management on both the financial and nonfinancial sides, and realize the sustainable growth of both our Group and society.

Directors and Auditors (As of June 27, 2019)



Directors

Osamu Murao, President and Representative Director

Apr. 1982 Joined Japan Storage Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Apr. 2010 General Manager, Industrial Battery Production Division, Industrial Batteries & Power Sources Business Unit, GS Yuasa International Ltd.
Jun. 2011 Officer, GS Yuasa International Ltd.
Jun. 2012 Director of the Company
Director of GS Yuasa International Ltd.
Jun. 2015 President of the Company (current position)
President, GS Yuasa International Ltd. (current position)

Kei Nishida, Executive Vice President and Representative Director

Apr. 1977 Joined Japan Storage Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Jul. 2007 Corporate Officer, GS Yuasa Power Supply, Ltd. (currently GS Yuasa International Ltd.)
General Manager, Corporate Strategic Planning Office and Head of the Public Relations Office of the Company
Jun. 2008 Corporate Officer of the Company
Jun. 2009 Director of the Company
Apr. 2010 Head of the Corporate Office of the Company; Director, GS Yuasa International Ltd.; Head of Lithium-ion Batteries Business of the Company
Jun. 2012 Managing Director of the Company; Managing Director, GS Yuasa International Ltd.
Jun. 2015 Senior Managing Director of the Company; Senior Managing Director, GS Yuasa International Ltd. (current position)
Jun. 2018 Executive Vice President of the Company (current position); Executive Vice President, GS Yuasa International Ltd. (current position)

Toshiyuki Nakagawa, Senior Managing Director

Apr. 1981 Joined Japan Storage Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Jan. 2006 General Manager, Finance and Accounting Division of the Company
Jul. 2007 Corporate Officer, GS Yuasa Power Supply, Ltd. (currently GS Yuasa International Ltd.)
Jun. 2009 Corporate Officer of the Company
Apr. 2010 General Manager, Corporate Office of the Company
Corporate Officer, GS Yuasa International Ltd.
Jun. 2010 Director of the Company; Head of the Corporate Office of the Company (current position)
Director, GS Yuasa International Ltd.
Jun. 2012 President, GS Yuasa Accounting Service Ltd.
Jun. 2014 Managing Director of the Company; Managing Director, GS Yuasa International Ltd.
Jun. 2018 Senior Managing Director of the Company (current position); Senior Managing Director, GS Yuasa International Ltd. (current position)

Masahide Kuragaki, Managing Director

Apr. 1979 Joined Japan Storage Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Jul. 2007 Corporate Officer, GS Yuasa Power Supply, Ltd. (currently GS Yuasa International Ltd.)
Apr. 2008 General Manager, Human Resources Division of the Company
Jun. 2009 Director of the Company;
Director of GS Yuasa Power Supply, Ltd. (currently GS Yuasa International Ltd.)
Jun. 2015 Outside Audit and Supervisory Board Member, Mitsubishi Nichiyu Forklift Co., Ltd. (currently Mitsubishi Logisnext Co., Ltd.); Outside Audit & Supervisory Board Member (current position)
Jun. 2017 Managing Director, GS Yuasa International Ltd. (current position)
Jun. 2018 Managing Director of the Company (current position)

Akio Furukawa, Director

Apr. 1981 Joined Yuasa Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Aug. 2003 General Manager, International Sales Department, Company Sales Unit, Power Supply System Sales Division, Yuasa Corporation (currently GS Yuasa International Ltd.)
Apr. 2010 General Manager, Industrial Battery Business Promotion Division, International Business Unit, GS Yuasa International Ltd.
Jun. 2011 Officer, GS Yuasa International Ltd.
Apr. 2012 Deputy General Manager, International Business Unit, GS Yuasa International Ltd.
Jun. 2014 Corporate Officer, GS Yuasa International Ltd.
Jun. 2017 Executive Officer of the Company
Jun. 2018 Director of the Company (current position); Director, GS Yuasa International Ltd. (current position)

Ikuo Otani, Outside Director

Mar. 1976 Joined Wacoal Corp. (currently Wacoal Holdings Corporation)
Jun. 2004 Corporate Officer and General Manager of Corporate Management Division, Wacoal Corp.
Jun. 2006 Director and Corporate Officer in charge of Corporate Management, Wacoal Corp.
Apr. 2008 Director, Corporate Officer and General Manager of General Planning Division, Wacoal Corp.
Apr. 2010 Director and Corporate Officer in charge of Accounting, Wacoal Corp.; General Manager of Corporate Planning Division, Wacoal Holdings Corporation
Jun. 2010 Director and General Manager of Corporate Planning Division, Wacoal Holdings Corporation
Jun. 2011 Managing Director, Wacoal Holdings Corporation
Jun. 2012 Senior Managing Director, Wacoal Holdings Corporation
Jun. 2017 Director of the Company (current position)

Takayoshi Matsunaga, Outside Director

Apr. 1975 Joined Sekisui Chemical Co., Ltd.
Jun. 2002 Director and Senior Vice President of High Performance Plastics Company, Sekisui Chemical Co., Ltd.
Apr. 2004 Director responsible for IT-Related Business Unit, High Performance Plastics Company, Sekisui Chemical Co., Ltd.;
Jun. 2004 Managing Director responsible for IT Business Unit, High Performance Plastics Company, Sekisui Chemical Co., Ltd.
Apr. 2005 Senior Managing Director and President of High Performance Plastics Company, Sekisui Chemical Co., Ltd.
Apr. 2008 Senior Managing Director, Senior Managing Officer, and President of High Performance Plastics Company, Sekisui Chemical Co., Ltd.
Jun. 2008 Director, Senior Managing Officer and President of High Performance Plastics Company, Sekisui Chemical Co., Ltd.
Mar. 2014 Director responsible for matters designated by the president, Sekisui Chemical Co., Ltd.
Jun. 2014 Audit & Supervisory Board Member, Sekisui Chemical Co., Ltd.; Outside Audit & Supervisory Board Member, Sekisui Jushi Corporation
Jun. 2018 Director of the Company (current position)

Auditors

Katsuya Ohara, Outside Corporate Auditor (Full-time)

Apr. 1981 Joined the Bank of Tokyo, Ltd. (currently the MUFG Bank, Ltd.)
Apr. 1996 Deputy Manager of Paris Branch, Bank of Tokyo-Mitsubishi, Ltd. (currently MUFG Bank, Ltd.)
Sep. 2000 Deputy Manager, Treasury Trading Group, Currency Exchange and Capital Division, Bank of Tokyo-Mitsubishi UFJ, Ltd. (currently the MUFG Bank, Ltd.)
Jan. 2003 Head of the Currency Exchange and Capital ASEAN Office, Currency Exchange and Capital Division, Bank of Tokyo-Mitsubishi UFJ, Ltd. (currently MUFG Bank, Ltd.)
Jan. 2006 General Manager of Milano Branch, the Bank of Tokyo-Mitsubishi UFJ, Ltd. (currently MUFG Bank, Ltd.)
May 2008 President, Managing Director & General Manager of Bank of Tokyo-Mitsubishi UFJ (Holland) N.V. (currently MUFG Bank (Europe) N.V.)
Jun. 2011 Managing Executive Officer, Deputy General Manager of Global Business Unit, and General Manager of International Business Consulting Office, Mitsubishi UFJ Research and Consulting Co., Ltd.
Jun. 2013 Managing Executive Officer, General Manager, International Department, Consulting and Global Business Unit, Mitsubishi UFJ Research and Consulting Co., Ltd.
Jun. 2016 Full-time Corporate Auditor of the Company (current position); Full-time Corporate Auditor of GS Yuasa International Ltd. (current position)

Hideaki Yamada, Corporate Auditor (Full-time)

Apr. 1980 Joined Japan Storage Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Sep. 2005 Head of Auditing Office of the Company
Apr. 2008 General Manager, General Affairs Division of the Company
Jun. 2009 Corporate Officer, GS Yuasa Power Supply, Ltd. (currently GS Yuasa International Ltd.)
Jun. 2010 General Manager in charge of Corporate Strategy, Corporate Office of the Company; Head of Corporate Strategic Planning Office of GS Yuasa International Ltd.
Jun. 2014 Executive Officer of GS Yuasa International Ltd.
Jun. 2017 Full-time Corporate Auditor of the Company (current position); Full-time Corporate Auditor of GS Yuasa International Ltd. (current position)

Masayuki Murakami, Corporate Auditor (Full-time)

Apr. 1982 Joined Japan Storage Battery Co., Ltd. (currently GS Yuasa International Ltd.)
Apr. 2012 General Manager of Original Equipment Sales Department of Automotive Battery Business Unit of GS Yuasa International Ltd.
Oct. 2012 Division Manager of Production Division of Automotive Battery Business Unit
Jun. 2013 Corporate Officer
Deputy Business Unit Manager of Automotive Battery Business Unit
Jan. 2014 General Manager of Lithium-ion Battery Business Development Department of Automotive Battery Business Unit
Jun. 2015 Director, person in charge of Automotive Battery Business and Environmental Management of the Company
Director of GS Yuasa International Ltd. (current position)
Business Unit Manager of Automotive Battery Business Unit
Jul. 2015 Division Manager of Sales Division of Automotive Battery Business Unit
Apr. 2017 Deputy Business Unit Manager of Automotive Battery Business Unit (current position)
Jun. 2019 Full-time Corporate Auditor of the Company (current position); Full-time Corporate Auditor of GS Yuasa International Ltd. (current position)

Tsukasa Fujii, Outside Corporate Auditor (Part-time)

Apr. 1986 Registered as an attorney at law; Joined Keiichi Uehara Law Office
Apr. 1991 Established Tatsuno, Ozaki & Fujii Law Office, Partner of the office (current position)
Apr. 2007 Part-time lecturer of Kansai Gakuin University Law School (current position)
Sep. 2014 Chairman of Hirakata City Building Examination Committee (current position)
Jan. 2017 Member of Committee of Experts of Osaka District Court (related to non-contentious landlord-tenant matters; current position)
Jun. 2017 Corporate Auditor of the Company (current position)

Governance

Corporate Governance

Approach and governance system

To drive sustainable growth and enhance corporate value over the medium and long terms, the GS Yuasa Group is committed to establishing an organization and systems that enable fast, efficient responses to a changing business environment. At the same time, our basic policy on corporate governance is to make every effort to thoroughly implement and strengthen compliance and enhance the soundness and transparency of management.

A new governance structure began in fiscal 2017 based on this philosophy. GS Yuasa Corporation, the holding company, is responsible for formulating management strategies for all of the Group's businesses, as well as management for the entire Group and oversight of the Group's business execution. GS Yuasa International Ltd., the Group's core operating company, is the key decision-making body for business execution, consolidating and strengthening business execution and making swift business-related decisions.

The Board of Directors makes fast and effective decisions

related to the Group's management by prioritizing strategic decision making and supervisory functions for management policy. In addition, monitoring has been reinforced by appointing multiple independent outside directors.

Evaluating the effectiveness of the Board of Directors

The effectiveness of the Board of Directors has been evaluated once a year since fiscal 2016. All directors and corporate auditors fill out a questionnaire on the structure, management, agenda and duties of the board. As a result of analysis and evaluation of the content, it has been deemed that the Board of Directors is operating effectively.

Countermeasures identified for improvement in fiscal 2017 were evaluated in fiscal 2018 and found to have been largely achieved. However, as some suggested further improvement was needed vis-a-vis the frequency and content of follow-up reports pertaining to important agenda items, re-evaluation of these areas was discussed. Going forward, we will continue to assess the effectiveness of the Board of Directors and strive to make further improvements.

Establishment of Nomination and Compensation Committee

On February 26, 2019, the Board of Directors voted to establish a discretionary Nomination and Compensation Committee, chaired by an independent outside director, and serving as an advisory body to the Board of Directors. The goal of the committee will be to strengthen the independence, objectivity and accountability of Board of Director functions such as director nominations and compensation.

Nomination committee functions include consulting on proposals for nominating new directors and for selecting a new corporate president and plans for successors (including human resource development), in addition to reporting findings to the Board of Directors.

Meanwhile, the compensation committee will consult on policy determinations for director compensation as well as for individual director remuneration, and reporting findings to the Board of Directors.

Nomination and Compensation Committee structure

Chairperson	Outside Directors	Ikuo Otani
Committee member	President	Osamu Murao
	Executive Vice President	Kei Nishida
	Outside Directors	Takayoshi Matsunaga

Policy on the independence of outside directors

Candidates selected as outside directors must meet the requirements for independence set out in the Companies Act and possess the experience and insight to objectively and fairly judge the legality and appropriateness of the execution of the company's duties from the shareholders' perspective without being limited by being in charge of business implementation. Also, we believe in the importance of employing people who are outwardly independent and use the Tokyo Stock Exchange's independence standards as their reference.

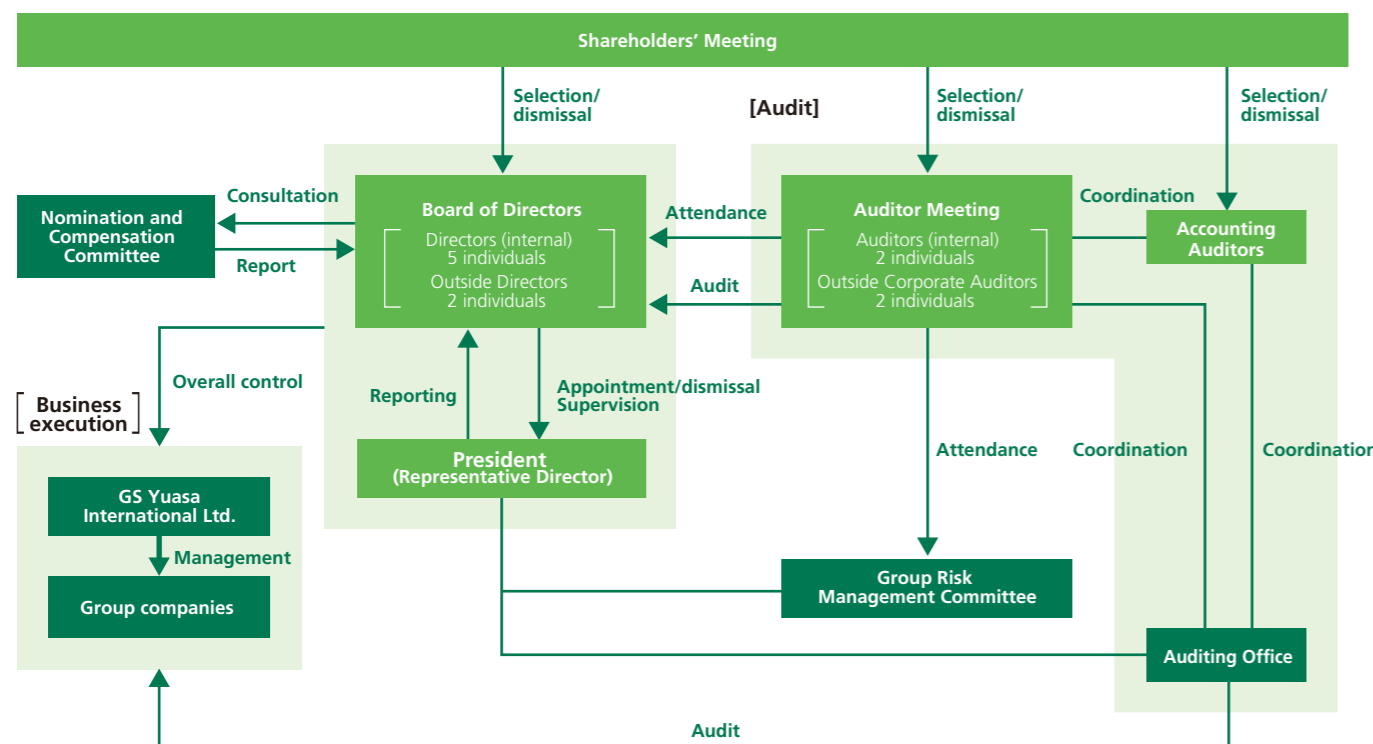
Record of attendance by outside directors at Board of Directors and Auditor Meetings

The record of attendance by outside directors at meetings of the Board of Directors and auditors in fiscal 2018 is shown below.

Record of attendance by Outside Directors at Board of Director and Auditor Meetings

Names	Board of Directors	Auditor Meeting
	No. of attendances / No. of meetings	No. of attendances / No. of meetings
Ikuo Otani Outside Director	18 / 18 times	— times
Takayoshi Matsunaga Outside Director	13 / 13	—
Shinji Ochiai Outside Corporate Auditor (Full-time)	18 / 18	13 / 13
Katsuya Ohara Outside Corporate Auditor (Full-time)	18 / 18	13 / 13
Tsukasa Fujii Outside Corporate Auditor (Part-time)	18 / 18	13 / 13

Governance structure (FY 2019)



Reasons for appointing internal directors

To provide control over the Group as the holding company, GS Yuasa Corporation applies a balanced approach to appointing directors who possess knowledge and experience covering the business and functions of the entire Group and the necessary aptitude and competence to ensure speedy decision making.

At present there are no female directors, but GS Yuasa positively recruits female graduates and promotes measures to encourage women to be active at work, including next-generation training, and the ratio of women in managerial positions is gradually increasing.

* Reasons for the appointment of individual internal directors and independent outside directors are given on our website: https://www.gs-yuasa.com/en/ir/pdf/GYC015ST_e.pdf

Remuneration of directors

Remuneration paid to directors and auditors in fiscal 2018 is shown below.

Total amount of remuneration, etc. by category and by type, and number of applicable persons

Category	Total amount of remuneration, etc. (Millions of yen)	Number of applicable persons
Directors (excluding outside directors)	102	6
Auditors (excluding outside corporate auditors)	12	1
Outside directors/auditors	54	6

Governance

Internal control system

To strengthen the management foundation, the GS Yuasa Group has improved the system and relevant rules to ensure the maintenance of ethical business practices based on the Companies Act. This system includes mechanisms to ensure effective auditing, information management, and risk management throughout the Group.

To comply with the internal control reporting system required under the Financial Instruments and Exchange Act, we are maintaining an internal control system and financial reporting mechanisms to meet all requirements. Our international subsidiaries and other consolidated Group companies evaluate the status of the improvement and implementation of internal controls. Following external audits, reports on these internal controls are publicly disclosed.

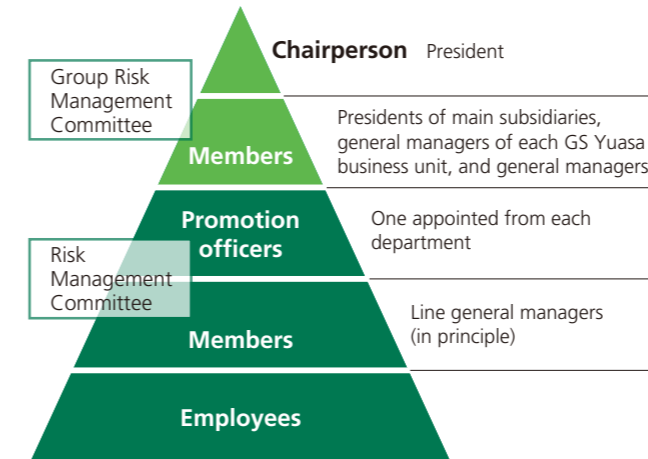
Risk Management

Basic approach

The GS Yuasa Group believes that risk management is essential for the lasting growth of the company. As our basic approach, the Group thinks that the following two points are important so that crises stemming from the escalation of risks do not exert a serious impact on the Group or on society in general.

First, by predicting and understanding risks and adopting appropriate preliminary measures, the escalation of risks (outbreak of crises) can be prevented. Second, effective measures can be taken beforehand so that even if a crisis does occur, the loss is kept to a minimum. Based on this approach, to properly promote risk management, our Group has formulated risk management rules that stipulate the responsibilities of employees and our risk management promotion setup.

Risk management structure



Risk management under the Group Risk Management Committee

The Group Risk Management Committee, headed by the president and consisting of the chairs of departmental Risk Management Committees, holds semiannual meetings to promote groupwide risk management and to encourage the sharing of key information related to risk management. The Risk Management Committee confirms that the appropriate risk management measures have been implemented, and the committee chairs report on progress in this area. We also actively exchange opinions and share information on the different styles of risk management.

Outside director's comment



Further strengthening and deepening of board of directors functions

Ikuo Otani
Outside Director

In recent years GS Yuasa has been steadily enhancing its governance setup through such measures as establishment of the Nomination and Compensation Committee, and the president and other directors are genuinely determined to address the issue of improving governance.

In the Group as a whole, however, efforts to improve monitoring functions are still at the halfway stage. For example, regarding important affiliate companies, I think it is necessary to create opportunities for officers in charge at each company to report on their management conditions to the Board

of Directors. In the fiscal year under review, upon request, I inspected two major affiliates in China and Turkey. When I reported on points that I had noticed as an outside director, they quickly adopted countermeasures. Such inspection of affiliate companies by outside directors is meaningful, but it is no more than complementary. From now on, in the management of the Board of Directors, I think we need to take steps to strengthen continuous monitoring functions.

Furthermore, there is a tendency for specific projects to be discussed individually in the Board of Directors, and checking of a project's position vis-à-vis the mid- to long-term business strategy in the background, as well as discussion of coordination with future mid- to long-term strategy, is often inadequate. By sharing a roadmap of mid- to long-term business strategy that takes account of GS Yuasa's strengths and weaknesses and deepening consideration of individual cases in line with the roadmap, I hope that the management team will further upgrade the accuracy of our strategy.

Outside auditor's comment



Emphasis on monitoring from a global perspective

Katsuya Ohara
Outside Corporate Auditor (Full-time)

After entering the Bank of Tokyo (currently MUFG Bank), I became involved for a long time in market operations and site management overseas. I had frontline experience of major changes and financial crises, from the Plaza Accord to the collapse of Lehman Brothers. Subsequently I supervised the international division in a financial group's consultant company. That rich experience of diligently working with people of differing nationalities and cultures is proving useful in my present work. While attending major meetings to keep an eye on the situation is important, it is also essential to actively listen to raw voices on the ground. Therefore, I make a point of

visiting overseas sites, which tend to be off the radar, to learn about often hidden facts and hear candid onsite feelings, which I then report to the top management.

GS Yuasa is a company with a long history and strong presence backed by technology and product quality, but we are now in an age when complacent thinking and a desire to stick with the status quo are impermissible. I am concerned that such thinking might lead to a lack of speed in management, a fall into an emphasis on in-house logic and mechanics, and a form of governance that forgets the reality that we are already a wide-area global enterprise and instead talks archaically in terms of "Japan knows best" or "leave it to local sites." In addition, from a separate mid- to long-term perspective, since it is human beings who constitute and steer an organization, I think it is also important for us as a company to develop independent and autonomous-minded human resources.

I will continue to make efforts so that we can improve our overall corporate value, which includes fulfilling our social responsibility, rather than simply corporate value backed by good business results.

Governance

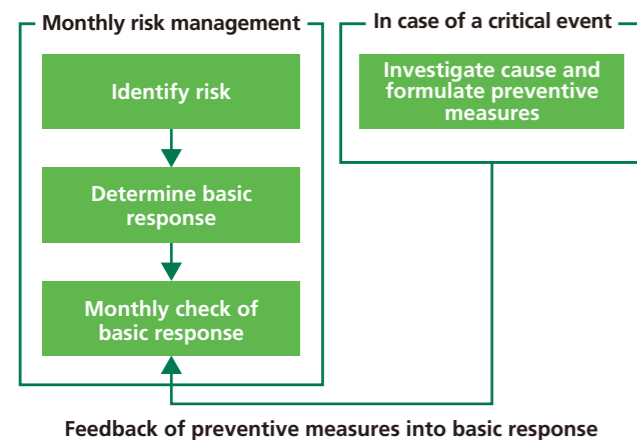
System for dealing with crises

To prepare for the possibility that a risk materializes, we have established a system that includes an emergency contact network to swiftly implement crisis management. If a serious crisis occurs, members of the Group Risk Management Committee will be appointed to organize a crisis management headquarters, under the president, to minimize corporate losses. The system we have set up enables us to implement an effective response swiftly and with appropriate care.

Risk management based on risk management sheets

In accordance with the risk management rules, each department assesses risk every month using a risk management sheet. On this form, the department first fills in the measures it is taking as a basic response to mitigate the risks it has identified and to avoid any critical events, as well as the policies to minimize loss if a critical event does occur. Each department confirms the status of implementation of these measures and related policies each month. The department also fills in the details of any critical events that occurred, as well as a summary of the response and the investigation into the cause and measures to prevent a reoccurrence. These preventive measures are fed back into the “basic response” and the status of implementation is checked each month to provide a framework that ensures that similar events do not happen again.

Risk management sheet



The risk management sheets produced by the departments are compiled at the divisional level with the director in charge of the division verifying and assessing

the status of response through the Risk Management Committee. The deliberations by the committees are summarized and then fed back to each department as part of a mechanism to improve the effectiveness of risk management.

Compliance

Basic philosophy on promoting compliance

By training our personnel according to our philosophy of innovation and growth while manifesting our commitment to society and preserving the global environment, we are ensuring that all employees are guided in their behavior focusing on compliance with laws, company regulations and ethical standards.

The Compliance Declaration made by the President states that success must never be achieved through legal and moral infringements and that “establishing rules and structure” and “developing a strong sense of commitment to realize compliance” are essential to becoming a corporate leader in compliance. Following these guidelines, multifaceted compliance promotion activities should be developed at every employee level, and each employee should incorporate self-directed and proactive actions into his/her basic approach to yield an effective improvement in compliance awareness.

Permeation of compliance awareness

The CSR Manual which delineates rules for adherence by every corporate Group member is distributed to all employees to facilitate permeation of compliance awareness.

The manual clarifies Group CSR policy and outlines behavioral standards which each employee must follow during business activities. To facilitate its usage as a tool for employees in gauging behavioral criteria, the manual delineates concrete examples of compliance and risk actualization and provides a diagnostic checklist to help employees assess their own adherence to corporate behavioral standards.

The manual further details how to use the internal whistleblower system for simple risk detection and introduces an emergency contact system for use in a crisis to realize quick responses to compliance infringements.

Workplace meetings on CSR

Workplace meetings on compliance, initiated in fiscal 2012 as a means of allowing compliance awareness to permeate to each and every employee, have been conducted for seven consecutive years.

Transitioning into “workplace meetings on CSR” from fiscal 2018, these meetings introduced 14 topics aligned with CSR policy, and are now being expanded to 22 Group companies within Japan in addition to the 331 GS Yuasa workplaces. Some 96% of workplaces have reported these activities to be effective, resulting in vigorous debate. The 14 topics of discussion include: defining CSR, preventing intentional wrongdoing, handling confidential information, subcontracting laws, personal information protection, security trade controls, intellectual property, respect for human rights, sexual/power harassment, management of working hours, occupational health and safety, product safety, waste management and promotion of supply chain CSR activities. The meetings use educational materials made by the division in charge on each topic and including content related to the circumstances of the Group. We intend to continue running these meetings and upgrading the content to ensure that it is both up-to-date and educational.

GS Yuasa Group corporate ethics hotline

We established GS Yuasa Group corporate ethics hotline regulations and set up a corporate ethics hotline. Accessible both internally and externally, the hotline enables employees, temporary workers, business partners and others to provide information anonymously if they become aware of behavior by a Group employee that violates the law or company regulations or is unethical or otherwise inappropriate or any matter that is at risk of becoming a violation.

In fiscal 2018, we received 10 reports relating to harassment and other matters (6 received in fiscal 2017). We conduct inquiries and take appropriate action on these matters, while remaining committed to protecting whistleblowers.

Elimination of antisocial elements

The GS Yuasa CSR Group clearly disavows contact “with personnel or organizations of organized crime,” in our CSR Policy while our CSR Code of Conduct similarly stipulates “separation from organized crime,” stating a specific policy that, “we will not provide any form of benefit in excess of

the normal shareholder’s right to any person or company associated with organized crime” and “we will cut off business or any other relationships with individuals and organizations having an indication of support for organized crime.” This policy and the Code of Conduct have been shared with all Group employees.

Information Security

Our Group places importance on global efforts to ensure information security. Through the regular monitoring of communications by an outside security service, the introduction of an illegal connection detection system and other measures, we endeavor to prevent illegal access to our in-house network and forestall damage.

To prevent the outflow of confidential information, we conduct the encryption of personal computer data taken outside the company and promote awareness-raising activities so that employees follow our procedures for the management of information system use, including the distribution of an information security handbook and the implementation of e-learning.

Furthermore, based on Japanese security standards, we conduct surveys of security measures in overseas Group companies and give guidance to address vulnerabilities.

Intellectual Property

We see intellectual property, the result of technological development, as one of our important assets. Every year we file about 200 to 300 patent applications in Japan and about 100 to 150 overseas. Our basic policy is to protect our Group’s outstanding technology through aggressive patent applications and to maintain the trust of our customers by eliminating imitation products.

In fiscal 2019, we are promoting efforts geared toward AI/IoT patents to supplement our ongoing slate of activities. We are also focusing on intellectual property risk aversion activities in our overseas Group companies and are affording intellectual property support to business promotion in our forefront and overseas divisions. We are also pursuing ongoing countermeasures, exposing and litigating against injurious overseas counterfeit goods, to ensure the reliability of available products for our customers.

Governance

CSR Management

GS Yuasa Group's CSR

"Innovation and Growth," our corporate philosophy, is the basis of the GS Yuasa Group's CSR. By developing new technologies and reforming our business processes without being bound by convention, we aim to generate innovation and, as a result, drive sustainable growth by expanding earnings and contributing to people, society and the global environment. This is the basis of our CSR. Furthermore, by responding swiftly through our business to global social issues and the needs and expectations of interested parties, we aim to become a company in which society places long-term trust and hopes for us to remain a presence into the future.

CSR Policy and Code of Conduct

The GS YUASA CSR Policy and Code of Conduct, formulated in May 2017 as the President's Policy, have become the foundation of the Group's CSR activities. In the GS Yuasa Group, all employees understand that CSR activities are business activities, and we encourage everyone to take part based on our CSR Policy and Code of Conduct in order to ensure the sustainable development of society and business.

CSR promotion framework

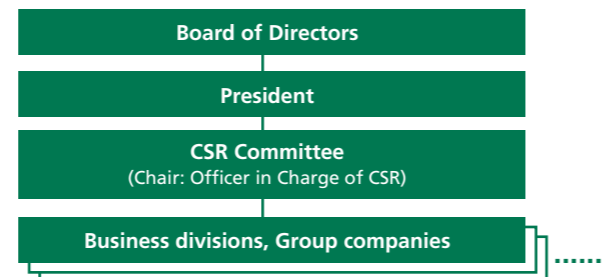
Our Group has established an organizational framework to promote CSR through our business and to make continuous improvements.

In order to supervise the CSR activities of the entire Group, including related companies both in Japan and overseas, we have designated the company President as the chief commanding officer for the promotion of CSR and set up the post of officer in charge of CSR, who is appointed by and works directly under the president.

In addition, the CSR Committee, which is chaired by the officer in charge of CSR and comprises persons responsible for CSR in business divisions, Group companies, etc. as members, discusses, promotes and plans CSR activities throughout the Group as a whole.

After important matters relating to the promotion of CSR in the Group, including CSR Policy, have been discussed in the CSR Committee, they are decided by the Board of Directors and management meetings.

CSR promotion framework



CSR Policy

Besides legal compliance, we respect international norms, guidelines, and initiatives related to social responsibility, work on sustainable development of our business through developing energy storage technologies, and contribute to people, society, and global environment.

1. Developing fair, transparent, and sound business, and anti-corruption
2. Respect for human rights
3. Conservation and improvement of adequate working environment
4. Fulfillment of our responsibilities to provide safe and secure products and services
5. Global environmental conservation
6. Building better relationships with local communities
7. Ensuring social responsibility within our supply chain

*Our CSR Policy and CSR Code of Conduct are available on our website: <https://www.gs-yuasa.com/en/csr/policy.php>

CSR promotion process

The GS Yuasa Group has established a process based on our CSR promotion plan that advances CSR-related initiatives through business activities. The goal of this process is to achieve enhanced corporate value and stakeholder satisfaction through development of a corporate philosophy which reflects the Group's enduring corporate values.

We have formulated management and CSR policies to serve as evaluation criteria for decision-making to facilitate realization of our corporate philosophy. Regarding the major areas of CSR policy, we have compiled the CSR Code of Conduct, which clarifies the specific direction of CSR activities, and individual policies clarifying concrete behavioral standards in CSR activities.

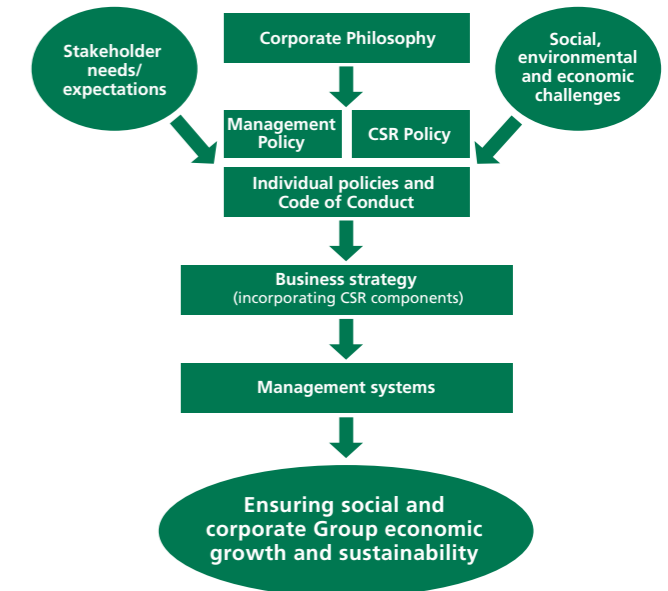
Our business strategy process incorporates planning designed to realize CSR policy. Corporate planning is formulated to ensure social and corporate Group economic growth and sustainability which fulfills stakeholder needs and expectations while addressing social issues. Achieving this planning requires application of multiple management systems based on existing business processes. Performance of operational processes relies on reevaluation by the CSR Committee, chaired by the officer in charge of CSR, with continuous improvements as necessary.

Meanwhile, our CSR Manual, detailing the Group's CSR Policy, is distributed to each employee to ensure Company-wide CSR promotion. Behavioral standards underpinning the CSR Policy are clarified for employees in Q&A sections and columns covering key topics, along with a checklist for employee self-assessment of behavioral conformity with CSR Policy. The CSR Manual is translated into 6 languages for use among local-hire employees in our overseas Group companies to ensure full comprehension of Group policy. Our goal is to promote CSR directionality and to implement CSR through our business activities based on a common understanding of CSR shared by all Group employees in Japan and overseas.

CSR promotion initiatives

Phase	Period	Target
First stage	FY 2016–17	Create processes to deal with the CSR issues in relation to our business strategy (Fourth Mid-Term Management Plan)
Second stage	FY 2018	Analyze and evaluate our performance using these processes and then make improvements
Third stage	FY 2019	Establish business processes that incorporate CSR issues into our business strategy (Fifth Mid-Term Management Plan)
Fourth stage	FY 2019 onward	Implement CSR activities in all of our business processes to ensure sustainable social and corporate growth.

Overview of CSR promotion process



Incorporating materiality (key CSR issues) into Group business strategy

To reflect CSR issues in our business strategy, the GS Yuasa Group analyzes and assesses the impact on business and the impact of our business on society and then clarifies the Group's materiality for items that need to be addressed. Regarding the specified materiality, as necessary we have set targets relating to our business strategy and, to achieve those targets, have formulated concrete activity plans and key performance indicators (KPIs) to gauge progress in achieving the goals.

Materiality is periodically revised by the GS Yuasa Group CSR Committee in accordance with evolving stakeholder needs/expectations and social issues. When incorporating materiality into business strategy, the CSR Committee formulates plans that will lead to enhanced stakeholder satisfaction through the strengthening of our corporate infrastructure and enhancement of corporate value.

The GS Yuasa Group aims for enhanced management of financial and non-financial operations, as well as for sustainable corporate and social growth through execution of business processes that incorporate materiality in the Mid-Term Management Plan.

*An overview of CSR issues impacting sustainable growth in our Fifth Mid-Term Management Plan may be found on p. 30 (ESG Initiatives).

Environment

Environmental Management

Fundamental Environmental Policy

In recent years, we understand that our stakeholders have become increasingly concerned about our environmental issues, including climate-related issues. In such a situation, we believe that we are socially responsible for realizing a low-carbon society and contributing to a recycling-oriented society.

The GS Yuasa Group has established this Fundamental Environmental Policy to outline our basic Group-wide approach to environmental efforts. The policy aims to clarify our social responsibility toward the environment and guide our contributions to the emergence of a sustainable society. We are also developing and using environmental management systems that will help to reduce environmental impacts and prevent any accidents that could cause environmental pollution.

* Our Fundamental Environmental Policy is available on our website: https://www.gs-yuasa.com/en/csr/env_policy.php

Organizational structure

In the organizational structure for GS Yuasa Group's environmental management systems, the president of GS Yuasa serves as the chief executive officer responsible for environmental management, overseeing the environmental management of the entire Group working with officers in charge of environmental under direct supervision. Environmental issues that affect the entire Group, such as fundamental environmental policy, are discussed and finalized at management meetings.

We are also establishing environmental management systems for domestic business sites and overseas Group companies to enable quick and efficient communication within the group. Starting in fiscal 2018, we are expanding the scope of ISO 14001 certification, the international standard for environmental management systems, from our main domestic business sites to the entire Group, thereby building a system for strategically achieving the Group's environmental goals.

* Four domestic business sites have obtained integrated ISO 14001 certification (scheduled to increase to seven in fiscal 2019)

* Among our overseas Group companies, 20 production sites have obtained ISO 14001 certification for systems currently in use

Environmental risk management

Our GS Yuasa Group develops environmental risk management with consideration to the different needs of our stakeholders. In every business location, we work to prevent environmental pollution through operational management based on voluntary standards that are stricter than regulatory standards based on environmental laws, regional ordinances, and agreements.

In operations that have significant potential impact on the environment, we implement both tangible and intangible measures to reduce the risk of pollution. The tangible measures include: increasing the visibility of operations, preventing spills and using equipment to remove noxious substances. Intangible measures include: equipment inspections, monitoring, measuring and enhancing of operational procedures.

We also hold emergency response training regularly to help mitigate damage in an emergency situation.

In fiscal 2018 there were no instances of emergencies directly related to environmental pollution at any of our business locations.

In fiscal 2019, we have started to analyze and evaluate the impacts of climate-related risks on our future business, and have prepared measures against these risks.

Environmental Measures as Part of Our Business Strategy

Reduction of CO₂ emissions and water consumption at production sites worldwide

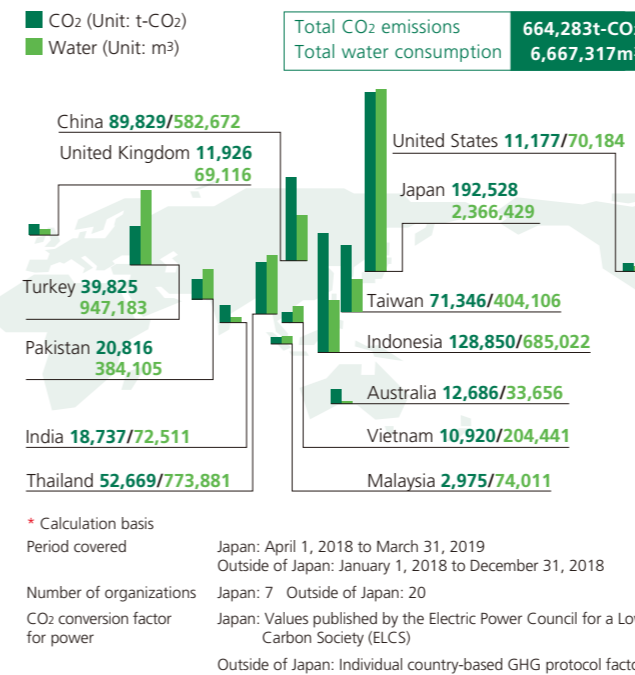
The GS Yuasa Group conducts research on CO₂ emissions and water consumption at production sites worldwide and undertakes global initiatives to identify and reduce CO₂ emissions and water consumption from production around the world.

In fiscal 2019 we started taking action to contribute to a low-carbon, sustainable society as part of our business strategy by incorporating these global reduction targets into the Group's Mid-Term Management Plan.

Reduction targets for CO₂ emissions and water consumption in our Mid-Term Management Plan

Items	Targets (fiscal 2021)
CO ₂ emissions	6% reduction from fiscal 2018
Water consumption	8% reduction from fiscal 2018

CO₂ emissions and water consumption at main production sites by country



Utilization of third-party evaluation of our CO₂ emissions and water consumption

The GS Yuasa Group responds to the CDP Climate Change Questionnaire, a project requesting companies to release information on their climate change strategy and greenhouse gas emissions. The Group also responds to the Water Security Questionnaire, as is the case with climate change. We use the results of CDP evaluations and promote initiatives to mitigate and adapt to climate change as well as to recognize water risks and develop a strategy for that.

The Group received third-party verification from SGS Japan Inc., confirming the credibility of the greenhouse gas emission data that we have disclosed. We will continue to implement third-party verification to assure accuracy in the disclosure of data.

Popularizing environmentally considered products

The GS Yuasa Group defines environmentally considered products as those products that help mitigate global warming, and we are actively working to develop and popularize such products.

In fiscal 2019 we started incorporating into the Group's

Mid-Term Management Plan sales targets for environmentally considered products, making it part of our business strategy to work on climate change through the products we provide to customers.

Sales targets for environmentally considered products in the Mid-Term Management Plan

Indicator	Target (fiscal 2021)
Percentage of environmentally considered products in total sales of all products	35% or more

Examples of environmentally considered products

Item	Description
Batteries for vehicles with start-stop systems ("idling stop system": ISS)	Batteries for vehicles with start-stop systems (ISS) for improving 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 (power conditioners, lithium-ion battery, etc.)
Automotive lithium-ion batteries	Hybrid vehicle batteries and electric vehicle batteries that contribute significantly to reducing greenhouse gases

Increasing usage rate of recycled lead in products

The GS Yuasa Group is working to increase the usage rate of recycled lead—the primary material used in lead-acid batteries, one of our core products.

In fiscal 2019 we started taking action to work toward a sustainable recycling-oriented society as part of our business strategy by incorporating into the Group's Mid-Term Management Plan targets for the usage rate of recycled lead contained in our lead-acid batteries.

The GS Yuasa Group has been taking action to recycle our post-use products by building and operating a recycling system based on extended producer responsibility (EPR). We also plan to strengthen our efforts to use recycled materials in our products as we aim to contribute further to a recycling-oriented society.

Rate of use of recycled lead contained in lead-acid batteries in our Mid-Term Management Plan

Indicator	Target (fiscal 2021)
Rate of use of recycled lead (raw material) in all lead-acid batteries by weight	35% or more

Social

Respect for Human Rights

Prohibition of discrimination and respect for diversity

The GS Yuasa Group promotes fair employee selection, evaluation and training based on ability and performance. We prohibit discrimination in recruitment, personnel assessment and other employee circumstances. Also we respect diversity irrespective of race, gender, sexuality, nationality, place of birth, disability, religion or political opinion.

Prohibition of forced labor and child labor

The GS Yuasa Group is establishing the following basic rules on forced labor and child labor at overseas Group companies, in addition to Japan. We build a system to take immediate corrective action upon discovering forced labor or child labor by a supplier.

- **Prohibition of forced labor and child labor**

We will neither force labor, nor employ children under the legal working age. Furthermore, we will not tolerate forced labor or child labor in any way.

- **Avoidance of complicity in human rights abuse**

Directly or indirectly, we will not be complicit in human rights abuse.

Promoting human rights education

To implement business activities with respect for human rights, the GS Yuasa Group promotes education to raise employee awareness toward respect for human rights.

The following enlightenment and education initiatives help employees grasp various human rights issues and the importance of business activities keyed to human rights. When necessary, personnel participate in human rights risk assessment and other human rights management training sessions, nurturing and expanding knowledge vital in properly recognizing and evaluating human rights risks and their negative effects.

Human rights respect education

- Worksite training (meetings, discussions) in respect for human rights and avoiding harassment
- Distribution of booklets and internal e-mail newsletters designed to increase respect for human rights
- Distribution of our Group CSR policy manuals

- Human rights risk explanatory meetings targeting overseas site managers

Social topic 1

Grasping human rights initiatives at overseas Group companies

To avoid and alleviate negative effects of business activities on stakeholder human rights, from fiscal 2017 the GS Yuasa Group launched efforts to grasp the status of human rights initiatives at overseas Group companies.

Specifically, our CSR promotion inspectors toured working environments and examined other aspects of overseas Group companies, confirming compliance with the legal systems in nations and regions where business is conducted and making comparisons with international human rights standards.

At certain overseas Group companies, issues have been encountered with internal whistleblower system and other procedures. Plans call for analysis and evaluation of these results to devise countermeasures in line with the cultures and customs of the nations and regions where business is conducted.

Main inspection items

- Presence of forced labor, child labor, discrimination
- Work hours and wage management
- Respect for diversity
- Humane treatment
- Freedom of association
- Occupational health and safety, health care
- Comfortable working environments
- Human resources development, fair evaluation and personnel treatment systems

Conservation and Improvement of Adequate Working Environment

Provision of comfortable working environment

The GS Yuasa Group believes it is important to provide a comfortable and healthy working environment in which everyone can display their abilities fully and continues to work regardless of gender and age, to employees. Such projects are

conceived to build workplaces rich in energy and fulfillment for each and every member, promoting initiatives to supply employees with work environments steeped in rich and open communication. To progressively raise employee satisfaction, the Group moves to secure outstanding personnel, boost labor productivity and otherwise enhance its corporate competitiveness.

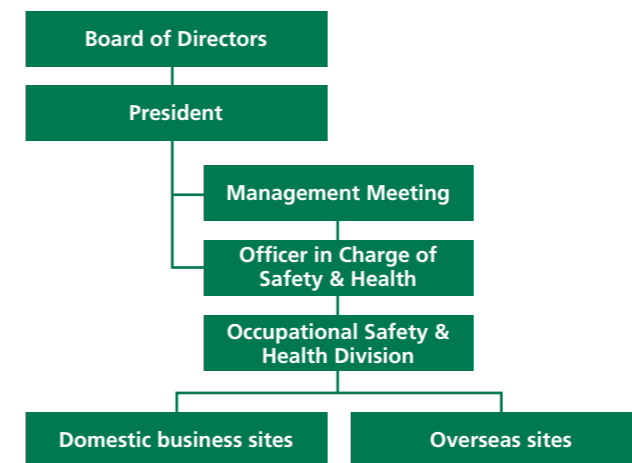
Top-management-promoted health and safety measures

The GS Yuasa Group promotes company-wide endeavors to build a corporate culture of safety. Based on the Health and Safety Declaration by the President, our uncompromising commitment is to protect all employees from injury, sickness and other workplace issues.

The Health and Safety Policy sets forth the Group's basic thinking on the optimum approaches in this domain. Our Occupational Safety and Health Division is instrumental in strengthening health and safety management at both domestic business sites and overseas Group companies. These efforts are accompanied by everyday health and safety activities routed through organizational structures focused on safety and health committees established at individual business divisions and companies.

* Our Health and Safety Policy is available on our website: https://www.gs-yuasa.com/en/csr/working_env.php

Health and safety organizational structure overview



Reducing occupational accident risk

GS Yuasa Group domestic business site initiatives for safe working environments include installation of soft poles for onsite pedestrian-vehicle separation, reviews of the volume and location of pedestrian crossings, moves to one-way vehicle traffic, restricted bicycle access and other measures. General inspections are conducted simultaneously at all plant workplaces, with risk assessments tracking latent hazards and risk reduction steps used to address such threat levels. Workplace conditions are further clarified with environmental measurements and monitoring of the impact of hazardous substances on workers through specialized health exams. In this way, work environment improvements reflect the results of regular monitoring and measurements.

Regarding overseas Group companies, we have implemented health and safety inspections at 18 battery manufacturing sites since fiscal 2017. Besides tracking safety levels, we have endeavored to reduce the risk of occupational accidents by reassessing risks, pointing out hazards and requesting improvements. Domestic safety control standards, operational processes and other health and safety management schemes are also being deployed at overseas sites, promoting effective administration over our Group-wide health and safety performance.

Human resources development and appropriate ability assessment

At the GS Yuasa Group, front-line workplaces are the engine that generates corporate value, and the lead players in those workplaces are our employees. We believe the best training is on-the-job training, so with a strong focus on management by objective we implement training to nurture autonomous-minded human resources.

In off-the-job training, employees take part in

Average annual human resources development training hours per employee (FY2018, GS Yuasa International Ltd.)

Item	Classification	Average training hours
Gender	Male	1.6
	Female	2.5
Types of employees	Indefinite-term employment	2.2
	Fixed-term employment	0.2

Social

communications training and voluntary training for career development and the improvement of management skills. With respect to career development, we promote career management in which all employees take the initiative in setting goals and thinking about their vision of work by implementing annual reviews relating to career formation.

Promoting women's roles

The GS Yuasa Group believes that providing the environment and opportunity for women's roles will enable every woman to shine, which in turn will help us achieve the "innovation and growth" stated in our philosophy. In an effort to do so, the Group is taking steps to promote women's roles with the aim of developing women who can maximize their potential in whatever they do. We aim to create a company where every female employee shine in her own unique way by enhancing the desire for personal growth and increasing the style and number of roles through the synergistic effects of what we call the "three Ls" (Link: Strengthen links among our people; Life: Warmly embrace the different life events; Lead: Lead women toward opportunities for autonomy and growth).

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

- Objective 1** Raise ratio of women among new graduates recruited for career-track positions every year to over 30%
- Objective 2** Raise understanding of childcare support systems to encourage male employees to participate in childcare
- Objective 3** Raise the maximum limit on use of half-day paid leave

Fulfillment of Our Responsibilities to Provide Safe and Secure Products and Services

Ensuring quality and safety through company-wide quality management

The GS Yuasa Group is promoting initiatives aiming to improve the quality of the products and services offered to our customers on a group-wide basis, based on the GS Yuasa Quality Policy. To remain a manufacturer trusted by customers at all times, the GS Yuasa Group approaches manufacturing activities from the customer's perspective and works relentlessly to improve the quality of products and services. To maintain this trust, we formulated, under the

Social topic 2

Designated as a Company with Excellent Health Management

GS Yuasa International Ltd. and three Group companies were each designated as a Company with Excellent Health Management 2018 - White 500 in a program run by the Ministry of Economy, Trade and Industry and Nippon Kenko Kaigi, for the third year in a row.

Fiscal 2018 witnessed outstanding evaluations and certification for company-wide work hour optimization efforts addressing work style reforms. Aiming to create a working environment in which employees can enjoy good health and work with vigor, we will continue to promote health management.



Specific group-wide health promotion measures

- 1. Optimize work hours, maintain positive work-life balance**
 - Thorough observance of "no-overtime-work days"
 - Making it compulsory to take at least 10 days of annual paid leave
 - Establish monthly overtime work hour limits
 - Prohibiting two consecutive days of work on prescribed holidays
 - Prohibiting overtime late at night
- 2. Mental disorder early detection, treatment, prevention of worsening**
 - Expanded consultation and counseling with industrial physicians and nursing staffers
 - Encourage nursing staffer consultations for all employees identified as high risk through stress tests
 - Continued access to "line care" and "self-care" training sessions
- 3. Early cancer detection and treatment**
 - Regular distribution of cancer self-examination guides to employees and family members
 - Inclusion of gynecological examinations in regular health checkups

leadership of top management, the GS Yuasa Quality Management System based on the ISO 9001 standard and are promoting a quality management system that crosses business divisions. The quality of our products and services is discussed company-wide every month by the Quality Management Committee, which is chaired by a director (the executive officer in charge of quality), to enable us to

Quality management organization



respond swiftly to any change.

As part of our initiatives to pursue manufacturing, we provide quality-related education courses to all employees and promote improvement team activities company-wide as a way to bolster the awareness of quality among employees and to boost their understanding and skills related to quality management. Thereby enhancing the quality of our products and services.

* Our Quality Policy is available on our website: https://www.gs-yuasa.com/en/csr/quality_management.php

Initiatives for product safety and swift dissemination of information

Ensuring the safety of GS Yuasa Group's products has been positioned as a critical challenge because our products store, control and convert electrical energy.

The Product Safety Management Committee is responsible for guaranteeing the safety of our products across the board. We promote developments in business divisions after assessing conformity with product safety standards as well as the safety of products as they are used, age and deteriorate. For this reason, we are strengthening our product testing procedures using failure mode and effect analysis (FMEA) and fault tree analysis (FTA). In addition, we gather information on issues with product safety and provide this to top management without delay as part of a system that we have established and are operating to ensure a swift response.

Moving ahead, we aim to become a company supported by trust and quality by developing human resources capable of providing guidance on quality engineering and product safety, while proactively disclosing information on product safety.

Product safety action flow

Flow	Details of activities	Process, mechanism
Feedback on information	Product Safety Management Committee • Formulate policy on product safety activities • Debate issues related to product safety • Respond by setting up the crisis management headquarters	Risk Management Rules GS Yuasa Quality Management System Regulations on management of product safety
	Product safety activities • Formulate policies on product safety in business divisions • Ensure product safety in product realization process	Divisional policy book Quality-related manual for business divisions
	Gather information on products and services • Gather information on product safety • Gather information on complaints, defects and accidents for our products and services	Claims information system and Customer Service Center GS Yuasa website Daily quality report
	Examine information and take appropriate steps • Examine information, decide on and implement appropriate steps and make continual improvements (to prevent a reoccurrence) • Manage and respond to crises concerning product-related accidents and quality-related claims • Take steps to prevent harm and any additional accidents	Quality-related manual for business divisions Manual on crisis management concerning product-related accidents and quality-related claims Manual for implementing product recalls

Social

Social topic 3

Holding an exhibition showing examples of critical quality problems

The GS Yuasa Group believes that failure at a workplace provides a valuable learning opportunity in terms of the prevention of defective products. From this perspective, we have taken measures from fiscal 2016; specifically, we share information on examples of past product-related accidents caused by unsafe conditions and critical quality problems with employees so that we will never allow a similar quality problem to occur.

In fiscal 2018, the critical quality problem example exhibition was held at the Kyoto Plant, one of our Group companies, and 320 employees participated in this exhibition. These exhibitions use panels and other means to explain the causes, mechanisms and other aspects behind the occurrence of past critical quality problems, helping employees recognize examples of past mistakes as important lessons. For further understanding of such lessons, areas are provided onsite for exhibition-related presentations and Q&A sessions.

Results of participant questionnaires indicate that these exhibitions are effective in raising employee awareness of quality issues. Reflecting such visitor desires, exhibitions will continue to utilize the lessons of past failures to raise quality going forward.



At the exhibition



At the presentation

Carrying Corporate Social Responsibility to the Supply Chain

Promotion of CSR procurement

The GS Yuasa Group advances materials procurement based on awareness of such international social issues as forced labor, child labor and environmental destruction. Along with quality, performance, pricing, delivery deadlines and other conventional supply demands, it is also vital to base procurement in CSR championing human rights, working conditions and the global environment. Toward that end, the Group does not simply tackle CSR on its own, but also, in cooperation with suppliers, promotes CSR procurement (responsible procurement activities taking sustainability into consideration) in response to social issues.

By tackling CSR, we believe we can raise the mutual corporate value of our Group and suppliers and realize a mutually prosperous supply chain overall.

CSR procurement initiatives

In fiscal 2018, the GS Yuasa Group published CSR Procurement Guidelines and issued it to suppliers to better clarify the practices of responsible procurement. These Guidelines seek to support a sustainable society through the partnership linking the Group to all suppliers. The key goal is to reduce business risks capable of negatively impacting improvements in mutual performance and sustainability, with supplier briefings held to raise awareness of the spirit and key points of these new parameters throughout the supply chain.

To pinpoint important CSR issues in its supply chain, the Group surveys our suppliers' grasp of proper CSR measures. Questionnaires track corporate ethics, human rights, work environments, environmental protection, product safety, information and other themes. We also follow up on responses that pose doubts or are unclear. In fiscal 2018, we conducted questionnaires targeting 367 suppliers (125 in Japan, 242 overseas). Based on analysis and assessment of the responses, we will determine pivotal supply chain CSR issues and implement appropriate measures.

Financial Section

GS YUASA Report 2019

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11-Year Consolidated Financial Highlights

Years ended March 31

- Notes: 1. Lighting net sales and operating income were included in the "other" category in the fiscal years ended March 31, 2011 to 2014, and in "industrial batteries and power supplies" in the fiscal year ended March 31, 2015 and beyond.
 2. Automotive lithium-ion batteries net sales and operating income were included in the "other" category up to the fiscal year ended March 31, 2011.
 3. Operating income ratio, ROE and Payout ratio refer to income before amortization of goodwill (operating income and net income) after FY 2016.
 4. The Company implemented a five-to-one consolidation of ordinary shares on October 1, 2018, and consequently, per-share indicators from prior to the consolidation have been calculated as if the share consolidation were implemented.
 5. The "automotive batteries (overseas)" segment previously included a portion of transaction amounts for industrial batteries handled overseas, but as of fiscal 2018, the category was changed to "industrial batteries and power supplies." Net sales and operating income for fiscal 2017 are indicated for the reporting segments after the change.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
For the year (millions of yen):											
Net sales	¥ 283,421	¥ 247,224	¥ 272,514	¥ 285,434	¥ 274,509	¥ 347,995	¥ 369,760	¥ 365,610	¥ 359,605	¥ 410,951	¥ 413,089
Automotive batteries (Japan)	67,190	56,713	58,887	58,784	55,648	56,905	51,747	50,986	67,598	89,240	91,460
Automotive batteries (Overseas)	126,189	104,706	118,197	120,906	119,885	164,252	183,759	191,402	170,613	185,574	187,111
Industrial batteries and power supplies	65,559	59,031	65,944	68,464	72,427	79,242	79,822	74,804	72,765	74,237	69,984
Automotive lithium-ion batteries	–	–	–	20,974	10,597	32,501	45,181	38,312	39,305	44,784	45,585
Lighting	8,941	7,037	–	–	–	–	–	–	–	–	–
Others	15,540	19,736	29,485	16,303	15,951	15,094	9,248	10,104	9,323	17,113	18,947
Operating income	14,276	11,521	17,589	16,030	9,775	18,197	20,914	21,909	23,106	21,920	22,654
Operating income before amortization of goodwill	–	–	–	–	–	–	–	–	24,185	24,076	25,066
Automotive batteries (Japan)	1,563	1,753	4,837	4,266	3,931	3,310	2,397	3,291	5,676	6,143	7,766
Automotive batteries (Overseas)	5,112	6,904	8,593	6,006	6,380	8,996	10,786	11,358	10,460	8,960	10,558
Industrial batteries and power supplies	9,862	6,889	8,436	9,640	10,813	12,199	8,657	8,061	8,701	7,364	7,317
Automotive lithium-ion batteries	–	–	–	(3,265)	(11,249)	(7,243)	(2,626)	(565)	45	1,320	300
Lighting	24	(1,001)	–	–	–	–	–	–	–	–	–
Others	(615)	(1,295)	(4,278)	(617)	(100)	936	1,698	(235)	(699)	287	(876)
Elimination and/or corporate	(1,671)	(1,730)	–	–	–	–	–	–	–	–	–
Net income attributable to owners of the parent	4,228	6,487	11,722	11,733	5,767	9,982	10,043	9,030	12,229	11,449	13,524
Income attributable to owners of the parent before amortization of goodwill	–	–	–	–	–	–	–	–	13,699	13,894	15,974
Capital investment	10,775	16,911	20,005	38,849	33,159	18,570	11,008	12,955	19,909	15,223	21,461
Depreciation/amortization	8,869	8,863	10,167	11,228	13,264	12,939	15,715	15,309	15,241	16,506	16,115
Research and development expenses	5,395	4,442	5,854	6,250	6,227	6,495	6,725	6,996	9,533	11,170	9,868
Cash flows from operating activities	25,328	22,827	25,478	8,287	19,069	19,704	19,729	30,215	34,846	21,934	31,493
Cash flows from investing activities	(6,529)	(13,066)	(25,444)	(28,660)	(29,249)	(9,786)	(14,519)	(17,311)	(32,912)	(20,810)	(17,570)
Free cash flow	18,799	9,761	34	(20,373)	(10,180)	9,918	5,210	12,904	1,934	1,124	13,923
Cash flows from financing activities	(11,245)	284	8	13,152	3,839	589	(5,798)	(9,685)	(3,715)	(6,702)	(11,706)
At year-end (millions of yen):											
Total assets	¥ 213,585	¥ 236,804	¥ 247,446	¥ 278,426	¥ 290,368	¥ 340,462	¥ 359,522	¥ 346,523	¥ 370,508	¥ 389,216	¥ 384,243
Cash and cash equivalents	14,005	24,722	24,030	16,476	11,210	23,392	25,708	27,788	24,673	19,776	23,408
Total equity	66,049	111,860	122,310	136,221	141,189	154,702	182,187	177,790	188,155	205,638	207,708
Total debt	87,785	55,304	48,289	56,124	71,674	80,134	82,166	73,608	74,257	75,153	66,940
Total equity before non-controlling interests	60,731	101,648	108,360	115,126	125,352	139,454	161,386	153,723	161,722	175,775	178,320
Number of employees	11,795	12,235	12,394	12,265	12,599	13,609	14,506	14,415	14,710	14,585	14,217
Per share data (yen):											
Basic net income	¥ 57.59	¥ 81.58	¥ 141.97	¥ 142.10	¥ 69.85	¥ 120.91	¥ 121.66	¥ 109.39	¥ 148.14	¥ 138.90	¥ 164.74
Net assets	827.31	1,230.98	1,312.38	1,394.36	1,518.25	1,689.12	1,954.89	1,862.16	1,959.14	2,138.45	2,179.03
Cash dividends applicable to the year	30	30	40	40	30	40	50	50	50	50	50
Financial indices (%):											
Operating income ratio	5.0	4.7	6.5	5.6	3.6	5.2	5.7	6.0	6.7	5.9	6.1
ROE (Return On Equity)	6.4	8.0	11.2	10.2	4.8	7.5	6.7	5.7	8.7	8.2	9.0
Shareholders' equity ratio	28.4	42.9	43.8	41.3	43.2	41.0	44.9	44.4	43.6	45.2	46.4
Ratio of interest-bearing debt to cash flow (years)	3.5	2.4	1.9	8.0	4.0	4.2	4.3	2.5	2.2	3.5	2.2
Treasury stock purchase amount (purchase amount for next fiscal year) (100 million yen)	–	–	–	–	–	–	–	–	10.0	9.2	13.8
Dividend payout ratio	52.1	36.8	28.2	28.1	42.9	33.1	41.1	45.7	37.4	36.3	34.3
Overseas sales ratio	45.5	43.1	44.0	43.4	44.4	48.5	52.4	55.5	51.1	49.9	49.4

Financial Review

Results of Operations

In the fiscal year ended March 31, 2019, the Japanese economy recovered modestly, as consumer spending in Japan was strong, buoyed by improvements in both corporate earnings and the labor environment. Reviewing global economic trends, in the United States, consumer spending was robust due to the strong labor and income environments. Meanwhile, in China, the economy slowed down based on trade tension with the United States and other issues. In Europe, consumer spending was firm as the labor environment was on a recovery trend, but with continued uncertainty over Brexit, the situation remained unpredictable.

In this economic environment, the GS Yuasa Group's consolidated net sales for the fiscal year totaled ¥413,089 million, an increase of ¥2,137 million, or 0.5%, compared with the previous fiscal year. Sales grew mainly on progress made in passing on the increase in the price of lead into product prices and especially strong demand for replacement batteries in the automotive batteries segment. Operating income totaled ¥22,654 million for the fiscal year (¥25,066 million before amortization of goodwill), an increase of ¥734 million, or 3.3%, compared with the previous fiscal year. Ordinary income increased ¥3,341 million year on year, or 15.6%, to ¥24,728 million, reflecting the increase in operating income and an improvement in equity in earnings of equity-method affiliates. In conjunction with this, profit attributable to owners of parent totaled ¥13,524 million (¥15,974 million before amortization of goodwill), a

year-on-year increase of ¥2,074 million, or 18.1%.

Consolidated net sales, operating income before amortization of goodwill, ordinary income, profit, and profit before amortization of goodwill were all record highs.

Business reportable segments changed in the fiscal year under review. The year-on-year comparisons below are made by restating the previous year's results according to the new segments for comparison

Automotive Batteries

Net sales in Japan totaled ¥91,460 million for the fiscal year, a year-on-year increase of ¥2,219 million, or 2.5%. Sales were bolstered mainly by strong demand for replacement batteries. Segment income (before amortization of goodwill) increased ¥1,622 million year on year, or 26.4%, to ¥7,766 million, reflecting the aforementioned increase in sales as well as progress in passing on the increase in the price of lead into product prices.

Overseas net sales totaled ¥187,111 million, a year-on-year increase of ¥1,536 million, or 0.8%, mainly attributable to progress in passing on the increase in the price of lead into product prices, despite the decline in sales volume in conjunction with the impact of the economic slowdown centered in China and Southeast Asia. In association with this, overseas segment income increased ¥1,598 million year on year, or 17.8%, to ¥10,558 million.

Combined net sales from Japan and overseas totaled ¥278,572 million for the fiscal year, a year-on-year increase

of ¥3,756 million, or 1.4%. Segment income (before amortization of goodwill) increased ¥3,221 million year on year, or 21.3%, to ¥18,325 million.

Industrial Batteries and Power Supplies

Net sales in the industrial batteries and power supplies segment for the fiscal year totaled ¥69,984 million, a year-on-year decrease of ¥4,253 million, or 5.7%, due to a decline in sales of power supply systems and the transfer of certain businesses, along with other factors, despite strong sales of forklift batteries. Segment income totaled ¥7,317 million, a year-on-year decrease of ¥47 million, or 0.6%, due to the decline in sales.

Automotive Lithium-ion Batteries

Net sales in the automotive lithium-ion batteries segment for the fiscal year totaled ¥45,585 million, a year-on-year increase of ¥800 million, or 1.8%, due to higher sales of lithium-ion batteries for plug-in hybrid vehicles, despite the decline in sales of lithium-ion batteries for hybrid vehicles.

The segment posted income of ¥300 million, a year-on-year decrease of ¥1,020 million, or 77.3%, due to higher raw materials prices and an increase in development costs, along with other factors.

Others

Net sales in the other segment for the fiscal year totaled ¥18,947 million, a year-on-year increase of ¥1,833 million, or 10.7%, boosted by the increase in production of lithium-ion

batteries for submarines. Segment income after adjustments for corporate expenses, etc. totaled a loss of ¥876 million, a year-on-year deterioration of ¥1,163 million due to higher R&D expenses and other factors.

Financial Condition

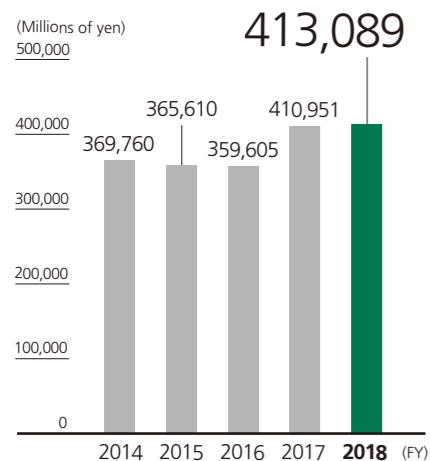
Total assets as of March 31, 2019, decreased by ¥4,972 million from the end of the previous fiscal year to 384,243 million. Despite an increase in cash and deposits and an increase in property, plant and equipment due to capital investment, there were decreases in trade accounts receivable due to collection, and decreases in goodwill and other intangible assets due to amortization.

Liabilities decreased by ¥7,042 million from the end of the previous fiscal year to ¥176,535 million. Although there was an increase due to bond issuances and execution of borrowings, this was offset by the redemption of bonds with subscription rights to shares.

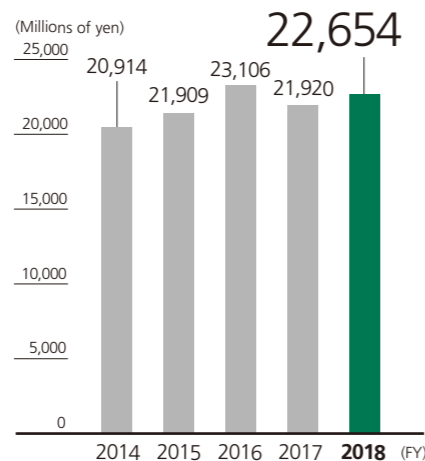
Net assets totaled ¥207,708 million, an increase of ¥2,069 million from the end of the previous fiscal year. Although there were dividends paid, as well as a decline in foreign currency translation adjustments due to exchange rate fluctuations and a decrease in remeasurements of defined benefit plans in conjunction with the decline in stock prices, the Company recorded profit attributable to owners of parent.

As a result of the above, the shareholders' equity ratio was 46.4%, up 1.2 points from the end of the previous fiscal year.

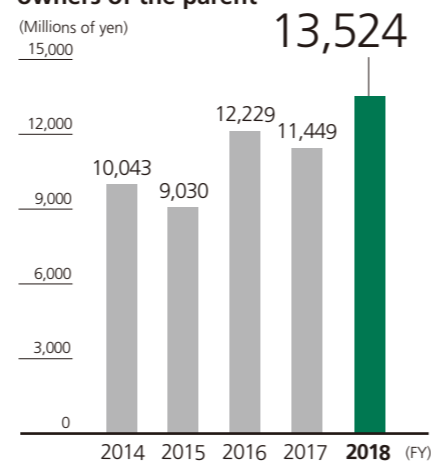
Net sales



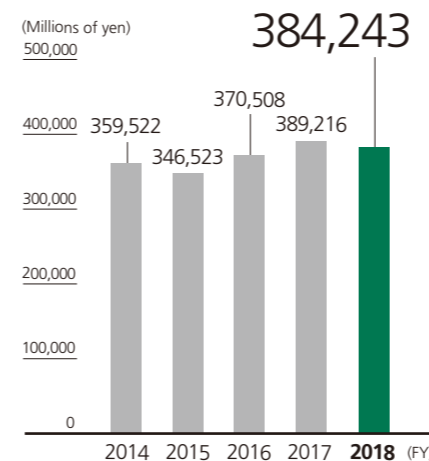
Operating income



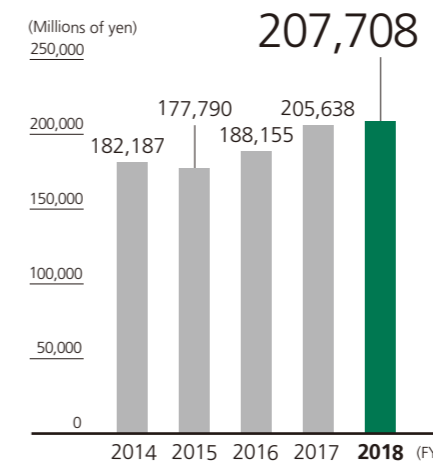
Net income attributable to owners of the parent



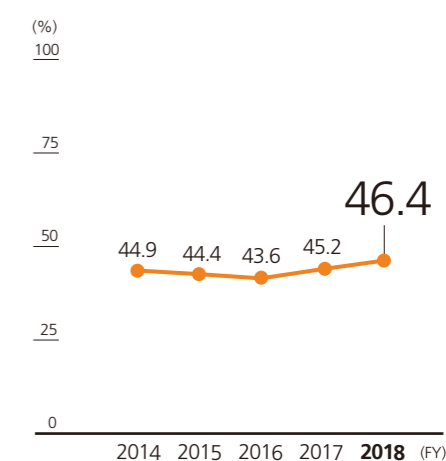
Total assets



Total equity



Shareholders' equity ratio



Financial Review

Status of Cash Flows

Cash and cash equivalents as of March 31, 2019, amounted to ¥23,408 million, an increase of ¥3,631 million, or 18.4%, from the end of the previous fiscal year. The main factors affecting cash flows are described below.

Cash Flows from Operating Activities

Net cash provided by operating activities in the fiscal year ended March 31, 2019, amounted to ¥31,493 million, compared with net cash provided of ¥21,934 million in the previous fiscal year. There were contributions from profit before income taxes, depreciation and amortization, and collection of trade accounts receivable, which were partially offset by decreases in trade accounts payable and the payment of income taxes.

Cash Flows from Investing Activities

Net cash used in investing activities totaled ¥17,570 million, compared with net cash used of ¥20,810 million in the previous fiscal year, mainly due to the purchase of property, plant, and equipment, and the acquisition of subsidiaries' shares.

Cash Flows from Financing Activities

Net cash used in financing activities amounted to ¥11,706 million, compared with net cash used of ¥6,702 million in the previous fiscal year. There was an increase in borrowings and issuance of bonds, which was outweighed

by the redemption of bonds with subscription rights to shares and the payment of dividends.

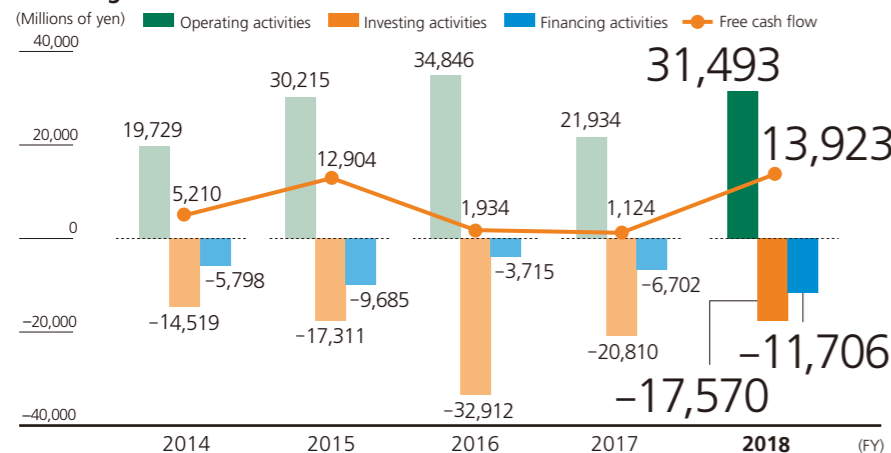
Basic Policy on Profit Distribution and Dividends

GS Yuasa considers the return of profits to shareholders to be a priority management issue. As a general policy, GS Yuasa decides the level of dividends based on a comprehensive analysis of consolidated earnings results, the financial condition, and the dividend payout ratio. Internal reserves are used to improve future earnings by maintaining and enhancing investments and competitiveness. Based on these initiatives, GS Yuasa aims to continue its growth into the future and secure long-term stable returns to shareholders.

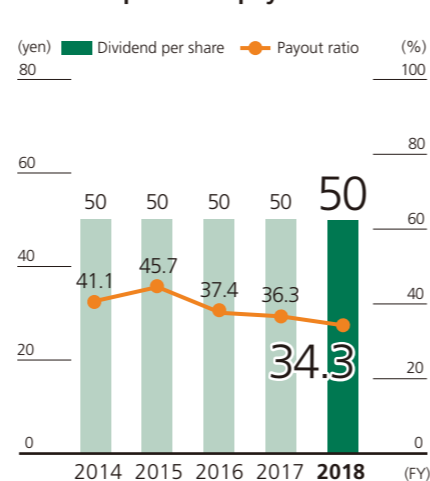
Regarding the year-end dividend for the fiscal year ended March 31, 2019, GS Yuasa plans to pay a fiscal year-end dividend of ¥35 per share, due to the fact that the initial target for profit attributable to owners of parent was achieved. The consolidated payout ratio will therefore be 30.4%. Effective October 1, 2018, the Company carried out a reverse stock split granting one share for every five shares owned. Based on stock owned after the reverse stock split, the annual dividend will be ¥50 per share.

Additionally, the Company plans to conduct share buybacks worth ¥1,379 million as a way to further return profits to shareholders (¥921 million worth of share buybacks were conducted in the previous fiscal year). The total return ratio including this effect will therefore be 34.3% (based on profit attributable to owners of parent before amortization of goodwill).

Cash flows from operating activities, investing activities and financing activities



Dividend per share/payout ratio



Risk Information

1. Economic Conditions

Demand for the GS Yuasa Group's products is influenced by economic conditions in the markets where products are sold. Therefore, in the Group's main markets, which include Japan, the rest of Asia, North America, and Europe, economic setbacks and accompanying demand contractions, could adversely affect the Group's earnings and financial standing.

2. Intensification of Price Competition

The GS Yuasa Group is exposed to intense price competition in each of the markets where it conducts business, and setting prices at advantageous levels has become difficult. Particularly in the automotive battery field (replacement), we not only face the same competitors as in Japan but also must deal with low-cost products supplied by overseas companies, which make competition more intense. The GS Yuasa Group is cutting costs and implementing measures to strengthen marketing power, but it may not be easy to maintain and expand market share and secure profitability in the future.

3. Foreign Exchange Rate Fluctuations

The GS Yuasa Group conducts business in Japan, the rest of Asia, North America, Europe, and other regions. Financial statement items that are denominated in local currencies outside of Japan, such as sales, expenses, and assets, are converted into yen for consolidated financial statements. The yen value of these amounts can change depending on the exchange rate, even if the amounts have not changed in local currencies. When local currencies appreciate in areas where the Group carries out overseas production, manufacturing and procurement costs can rise in these areas. The Group conducts forex-hedged transactions in an effort to hold the ill effects of short-term foreign exchange rate fluctuations to a minimum, but medium- to long-term currency fluctuations may impede the Group's ability to procure, manufacture, distribute, and sell goods according to plan. Therefore, it is possible for foreign exchange rate fluctuations to influence the Group's earnings and financial standing.

4. Risks Related to International Activities and Overseas Expansion

The GS Yuasa Group manufactures and markets products in Japan, the rest of Asia, North America, Europe, and elsewhere. The following risks are intrinsic to these markets, and they could affect the Group's earnings and financial standing.

- (a) Unforeseen changes to laws or regulations
- (b) Difficulty in hiring and keeping human resources
- (c) The possibility that inadequate technology infrastructure will affect the Group's manufacturing and other activities, or lower the reputation of GS Yuasa products among customers
- (d) Social disturbances caused by terrorism or war.

5. Risks Related to M&A

The GS Yuasa Group considers M&A to be a useful and effective tool for business expansion. When the Group carries out M&A, the transaction is considered from a range of viewpoints, including the target company's financial standing and potential synergy with the Group's businesses. Due to drastic changes in the business environment or other factors, however, an acquired business might not perform as planned. If invested funds cannot be recovered or a loss on goodwill is recorded, the GS Yuasa Group's earnings and financial standing could be affected.

6. Risks Related to Raw Material Markets Fluctuations

Lead is a key material used in lead-acid batteries, the GS Yuasa Group's main product. However, changes in the market price of lead cannot be reflected immediately in our product prices, so the Group's earnings and financial standing could be affected.

7. Effect of Seasonal Factors on Automotive Battery (Replacement) Sales Volume

The sales volume of the GS Yuasa Group's main product, automotive batteries (replacement) is affected by seasonal factors, particularly the weather. For example, cool summers and warm winters result in a narrower temperature range, which is favorable for maintaining battery performance, so replacement demand and thus sales volume declines under these conditions. These seasonal factors cannot be accurately forecast, making it difficult to take adequate countermeasures in advance, so seasonal factors could affect the Group's earnings and financial standing.

8. Interest Rate Fluctuations

The GS Yuasa Group's interest-bearing debt burden includes some debt with variable interest rates. Therefore, if interest rates rise, the Group's cost for procuring funds could increase.

9. Lawsuits and Other Legal Proceedings

In carrying out business, the GS Yuasa Group may be sued by suppliers or third parties, and there is a risk that regulatory authorities could take legal action against the Group.

10. Environmental Regulations

In China, the central government shows signs of strengthening environmental regulations on lead-acid battery manufacturers and lead smelters. Some manufacturing activities at GS Yuasa Group companies could be affected.

Consolidated Balance Sheet

GS Yuasa Corporation and Consolidated Subsidiaries
March 31, 2019

	Millions of Yen		Thousands of U.S. Dollars (Note 1)
	2019	2018	2019
ASSETS			
CURRENT ASSETS:			
Cash and cash equivalents (Notes 7 and 13)	¥ 23,409	¥ 19,777	\$ 210,892
Time deposits (Notes 7 and 13)	210	186	1,892
Receivables (Notes 7 and 13):			
Trade notes	8,621	6,621	77,667
Trade accounts	65,773	73,298	592,550
Other	4,867	7,886	43,847
Allowance for doubtful receivables	(316)	(499)	(2,847)
Inventories (Notes 3 and 7)	67,828	69,743	611,063
Prepaid expenses and other current assets (Note 7)	5,599	2,384	50,441
Total current assets	175,991	179,396	1,585,505
PROPERTY, PLANT AND EQUIPMENT (Notes 6 and 7):			
Land (Notes 2.h and 2.j)	22,406	24,047	201,856
Buildings and structures	106,759	99,196	961,793
Machinery and equipment	161,298	157,694	1,453,135
Furniture and fixtures	31,340	31,980	282,342
Leased assets	6,021	5,976	54,243
Construction in progress	8,450	7,889	76,126
Total	336,274	326,782	3,029,495
Accumulated depreciation	(212,073)	(203,935)	(1,910,568)
Net property, plant and equipment	124,201	122,847	1,118,927
INVESTMENTS AND OTHER ASSETS:			
Investment securities (Notes 4 and 13)	26,870	26,701	242,072
Investments in unconsolidated subsidiaries and associated companies (Notes 5 and 13)	30,106	30,839	271,225
Goodwill	3,348	4,350	30,162
Asset for retirement benefits (Note 8)	11,669	12,097	105,126
Deferred tax assets (Note 10)	2,502	2,443	22,541
Other assets (Note 7)	9,556	10,544	86,091
Total investments and other assets	84,051	86,974	757,217
TOTAL	¥ 384,243	¥ 389,216	\$ 3,461,649

* Shares have been restated, as appropriate, to reflect a one-for-five reverse stock split effected October 1, 2018.

See notes to consolidated financial statements.

	Millions of Yen		Thousands of U.S. Dollars (Note 1)
	2019	2018	2019
LIABILITIES AND EQUITY			
CURRENT LIABILITIES:			
Short-term bank loans (Notes 7 and 13)	¥ 8,192	¥ 13,348	\$ 73,802
Commercial papers (Notes 7 and 13)	3,000		27,027
Current portion of long-term debt (Notes 7 and 13)	2,348	29,654	21,153
Payables (Note 13):			
Trade notes	20,597	18,701	185,559
Trade accounts	31,679	32,947	285,396
Other	11,859	8,946	106,838
Income taxes payable (Note 13)	3,248	3,005	29,261
Accrued expenses	10,007	11,166	90,153
Other current liabilities (Note 10)	5,809	6,891	52,334
Total current liabilities	96,739	124,659	871,523
LONG-TERM LIABILITIES:			
Long-term debt (Notes 7 and 13)	55,274	33,912	497,964
Liability for retirement benefits (Note 8)	4,274	6,400	38,505
Long-term deposits received	5,460	5,402	49,189
Deferred tax liabilities (Note 10)	12,067	10,562	108,712
Deferred tax liabilities on land revaluation (Note 2.j)	928	1,043	8,360
Other	1,793	1,602	16,153
Total long-term liabilities	79,796	58,920	718,883
COMMITMENTS AND CONTINGENT LIABILITIES (Notes 12, 14, and 15)			
EQUITY (Notes 9 and 18):			
Common stock, authorized, 280,000,000 shares; issued 82,714,942 shares in 2019 and 2018*	33,021	33,021	297,486
Capital surplus	55,313	55,313	498,315
Retained earnings	77,665	66,823	699,685
Treasury stock – at cost: 880,229 shares in 2019 and 517,357 shares in 2018 (Note 2.m)*	(2,315)	(1,387)	(20,856)
Accumulated other comprehensive income:			
Unrealized gain on available-for-sale securities	14,879	14,713	134,045
Deferred loss on derivatives under hedge accounting	(82)	(1)	(739)
Land revaluation surplus (Note 2.j)	2,137	2,398	19,252
Foreign currency translation adjustments	(489)	5,279	(4,405)
Defined retirement benefit plans (Note 8)	(1,810)	(384)	(16,306)
Total	178,319	175,775	1,606,477
Noncontrolling interests	29,389	29,862	264,766
Total equity	207,708	205,637	1,871,243
TOTAL	¥ 384,243	¥ 389,216	\$ 3,461,649

Consolidated Statement of Income

GS Yuasa Corporation and Consolidated Subsidiaries
Year Ended March 31, 2019

	Millions of Yen		Thousands of U.S. Dollars (Note 1)
	2019	2018	2019
NET SALES (Note 5)	¥ 413,089	¥ 410,951	\$ 3,721,523
COST OF SALES (Notes 5 and 11)	318,097	317,890	2,865,739
Gross profit	94,992	93,061	855,784
SELLING, GENERAL AND ADMINISTRATIVE EXPENSES (Note 11)	72,338	71,141	651,694
Operating income	22,654	21,920	204,090
OTHER INCOME (EXPENSES):			
Interest and dividend income	705	764	6,351
Interest expense	(645)	(837)	(5,811)
Write-down of investment securities		(98)	
Gain on sales of property, plant and equipment	3,249	578	29,270
Loss on disposal of property, plant and equipment	(474)	(382)	(4,270)
Foreign exchange (loss) gain	(606)	89	(5,459)
Equity in earnings (losses) of unconsolidated subsidiaries and associated companies	2,744	(519)	24,721
Gain on sales of investment securities	64		577
Loss on impairment of long-lived assets (Note 6)	(275)		(2,477)
Loss on liquidation of subsidiary (Note 6)	(1,800)	(650)	(16,216)
Other – net	(392)	(96)	(3,533)
Other expenses – net	2,570	(1,151)	23,153
INCOME BEFORE INCOME TAXES	25,224	20,769	227,243
INCOME TAXES (Note 10):			
Current	6,138	6,040	55,297
Deferred	1,990	(618)	17,928
Total income taxes	8,128	5,422	73,225
NET INCOME	17,096	15,347	154,018
NET INCOME ATTRIBUTABLE TO NONCONTROLLING INTERESTS	(3,572)	(3,897)	(32,180)
NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT	¥ 13,524	¥ 11,450	\$ 121,838

	Yen		U.S. Dollars
	2019	2018	2019
PER SHARE OF COMMON STOCK (Note 17)*:			
Basic net income	¥ 164.74	¥ 138.90	\$ 1.48
Diluted net income	154.08	129.46	1.39
Cash dividends applicable to the year	50.00	50.00	0.45

* Per share figures have been restated, as appropriate, to reflect a one-for-five reverse stock split effected October 1, 2018.

See notes to consolidated financial statements.

Consolidated Statement of Comprehensive Income

GS Yuasa Corporation and Consolidated Subsidiaries
Year Ended March 31, 2019

	Millions of Yen		Thousands of U.S. Dollars (Note 1)
	2019	2018	2019
NET INCOME	¥ 17,096	¥ 15,347	\$ 154,018
OTHER COMPREHENSIVE INCOME (LOSS) (Note 16):			
Unrealized gain on available-for-sale securities	202	3,945	1,820
Deferred gain (loss) on derivatives under hedge accounting	1	(1)	9
Foreign currency translation adjustments	(682)	2,260	(6,144)
Defined retirement benefit plans	(1,425)	821	(12,838)
Share of other comprehensive (loss) income in associates	(2,271)	1,218	(20,460)
Total other comprehensive (loss) income	(4,175)	8,243	(37,613)
COMPREHENSIVE INCOME (Note 16)	¥ 12,921	¥ 23,590	\$ 116,405
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO:			
Owners of the parent	¥ 9,314	¥ 19,188	\$ 83,910
Noncontrolling interests	3,607	4,402	32,495

See notes to consolidated financial statements.

Consolidated Statement of Changes in Equity

GS Yuasa Corporation and Consolidated Subsidiaries
Year Ended March 31, 2019

	Number of Shares of Common Stock Outstanding*	Millions of Yen					Millions of Yen					Total	Noncontrolling Interests	Total Equity
		Common Stock	Capital Surplus	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income								
						Unrealized Gain on Available-for-Sale Securities	Deferred Loss on Derivatives under Hedge Accounting	Land Revaluation Surplus	Foreign Currency Translation Adjustments	Defined Retirement Benefit Plans				
BALANCE, APRIL 1, 2017	82,547,887	¥ 33,021	¥ 55,293	¥ 59,501	¥ (359)	¥ 10,769		¥ 2,398	¥ 2,331	¥ (1,231)	¥ 161,723	¥ 26,433	¥ 188,156	
Net income attributable to owners of the parent				11,450							11,450		11,450	
Cash dividends, ¥50.00 per share*				(4,128)							(4,128)		(4,128)	
Purchase of treasury stock	(350,302)				(1,127)						(1,127)		(1,127)	
Disposal of treasury stock			20		99						119		119	
Net change in the year						3,944	¥ (1)		2,948	847	7,738	3,429	11,167	
BALANCE, MARCH 31, 2018	82,197,585	33,021	55,313	66,823	(1,387)	14,713	(1)	2,398	5,279	(384)	175,775	29,862	205,637	
Net income attributable to owners of the parent				13,524							13,524		13,524	
Cash dividends, ¥50.00 per share*				(4,112)							(4,112)		(4,112)	
Purchase of treasury stock	(362,872)				(932)						(932)		(932)	
Disposal of treasury stock			(0)		4						4		4	
Retirement of treasury stock			(0)		0									
Reversal of land revaluation surplus				261							261		261	
Change of financial year of subsidiaries				1,084							1,084		1,084	
Change in scope of consolidation				85							85		85	
Net change in the year						166	(81)	(261)	(5,768)	(1,426)	(7,370)	(473)	(7,843)	
BALANCE, MARCH 31, 2019	81,834,713	¥ 33,021	¥ 55,313	¥ 77,665	¥ (2,315)	¥ 14,879	¥ (82)	¥ 2,137	¥ (489)	¥ (1,810)	¥ 178,319	¥ 29,389	¥ 207,708	

	Thousands of U.S. Dollars (Note 1)					Thousands of U.S. Dollars (Note 1)					Total	Noncontrolling Interests	Total Equity
	Common Stock	Capital Surplus	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income								
					Unrealized Gain on Available-for-Sale Securities	Deferred Loss on Derivatives under Hedge Accounting	Land Revaluation Surplus	Foreign Currency Translation Adjustments	Defined Retirement Benefit Plans				
BALANCE, MARCH 31, 2018	\$ 297,486	\$ 498,315	\$ 602,009	\$ (12,495)	\$ 132,550	\$ (9)	\$ 21,604	\$ 47,559	\$ (3,459)	\$ 1,583,560	\$ 269,027	\$ 1,852,587	
Net income attributable to owners of the parent			121,838							121,838		121,838	
Cash dividends, \$0.45 per share*			(37,045)							(37,045)		(37,045)	
Purchase of treasury stock				(8,396)						(8,396)		(8,396)	
Disposal of treasury stock			(0)	35						35		35	
Retirement of treasury stock			(0)							(0)		(0)	
Reversal of land revaluation surplus			2,351							2,351		2,351	
Change of financial year of subsidiaries			9,766							9,766		9,766	
Change in scope of consolidation			766							766		766	
Net change in the year					1,495	(730)	(2,352)	(51,964)	(12,847)	(66,398)	(4,261)	(70,659)	
BALANCE, MARCH 31, 2019	\$ 297,486	\$ 498,315	\$ 699,685	\$ (20,856)	\$ 134,045	\$ (739)	\$ 19,252	\$ (4,405)	\$ (16,306)	\$ 1,606,477	\$ 264,766	\$ 1,871,243	

* Shares and per share figures have been restated, as appropriate, to reflect a one-for-five reverse stock split effected October 1, 2018.

See notes to consolidated financial statements.

Consolidated Statement of Cash Flows

GS Yuasa Corporation and Consolidated Subsidiaries
Year Ended March 31, 2019

	Millions of Yen		Thousands of U.S. Dollars (Note 1)
	2019	2018	2019
OPERATING ACTIVITIES:			
Income before income taxes	¥ 25,224	¥ 20,769	\$ 227,243
Adjustments for:			
Income taxes–paid	(7,248)	(7,025)	(65,297)
Depreciation and amortization	17,821	18,119	160,550
Write-down of investment securities		98	
Gain on sales of investment securities	(64)		(577)
Gain on sales of property, plant and equipment	(3,249)	(578)	(29,270)
Loss on disposal of property, plant and equipment	474	382	4,270
Loss on impairment of long-lived assets	275		2,477
Equity in (earnings) losses of unconsolidated subsidiaries and associated companies	(2,744)	519	(24,721)
Loss on liquidation of subsidiary	1,800	650	16,216
Changes in assets and liabilities:			
Decrease (increase) in trade receivables	4,123	(6,709)	37,144
Increase in inventories	(1,671)	(5,694)	(15,054)
Decrease in interest and dividend receivables	611	790	5,505
(Decrease) increase in trade payables	(1,639)	3,096	(14,766)
Increase (decrease) in interest payables	12	(25)	108
Decrease in liability for retirement benefits	(3,699)	(3,781)	(33,324)
Other – net	1,468	1,323	13,226
Net cash provided by operating activities	31,494	21,934	283,730
INVESTING ACTIVITIES:			
Proceeds from sales of property, plant and equipment	4,846	1,427	43,658
Purchases of property, plant and equipment	(19,853)	(18,277)	(178,856)
Proceeds from sales of investment securities	745		6,712
Purchases of investment securities		(3,310)	
Purchase of shares of subsidiaries	(2,812)		(25,333)
Other – net	(496)	(651)	(4,469)
Net cash used in investing activities	¥ (17,570)	¥ (20,811)	\$ (158,288)

	Millions of Yen		Thousands of U.S. Dollars (Note 1)
	2019	2018	2019
FINANCING ACTIVITIES:			
Increase in short-term bank loans – net	¥ 801	¥ 1,263	\$ 7,216
Proceeds from long-term bank loans	12,696	4,989	114,378
Repayments of long-term bank loans	(4,058)	(16,152)	(36,559)
Proceeds from issuance of bonds	10,000	10,000	90,090
Repayments for redemption of convertible bond	(25,000)		(225,225)
Purchase of treasury stock	(932)	(1,127)	(8,396)
Proceeds from disposal of treasury shares	4	119	36
Dividends paid	(4,112)	(4,130)	(37,045)
Dividends paid to noncontrolling interests	(1,316)	(1,466)	(11,856)
Proceeds from noncontrolling interests in capital increase of consolidated subsidiaries		380	
Other – net	210	(579)	1,893
Net cash used in financing activities	(11,707)	(6,703)	(105,468)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	2,217	(5,580)	19,974
FOREIGN CURRENCY TRANSLATION ADJUSTMENTS ON CASH AND CASH EQUIVALENTS	297	684	2,675
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	19,777	24,673	178,171
NET INCREASE IN CASH AND CASH EQUIVALENTS DUE TO CHANGE OF FINANCIAL YEAR OF SUBSIDIARIES	1,093		9,847
INCREASE IN CASH AND CASH EQUIVALENTS DUE TO NEWLY CONSOLIDATED SUBSIDIARIES	24		216
CASH AND CASH EQUIVALENTS, END OF YEAR	¥ 23,408	¥ 19,777	\$ 210,883

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements

GS Yuasa Corporation and Consolidated Subsidiaries
Year Ended March 31, 2019

1. BASIS OF PRESENTATION OF CONSOLIDATED FINANCIAL STATEMENTS

The accompanying consolidated financial statements of GS Yuasa Corporation (the "Company") have been prepared in accordance with the provisions set forth in the Japanese Financial Instruments and Exchange Act and its related accounting regulations and in accordance with accounting principles generally accepted in Japan ("Japanese GAAP"), which are different in certain respects as to the application and disclosure requirements of International Financial Reporting Standards.

In preparing these consolidated financial statements, certain reclassifications and rearrangements have been made to the consolidated financial statements issued domestically in Japan in order to present them in a form which is more familiar to readers outside Japan. In addition, certain reclassifications have been made in the 2018 consolidated financial statements to conform to the classifications used in 2019.

GS Battery Taiwan Co., Ltd. and other 15 consolidated subsidiaries changed their fiscal year end from December

31 to March 31, Tianjin GS Battery Co., Ltd. and other 11 consolidated subsidiaries has changed their accounting method which they prepare their financial statement provisionally on fiscal year ended March 31 in order to enhance transparency through the timely and appropriate disclosure of management information from this consolidated financial year. Profits and losses of overseas consolidated subsidiaries for the period from January 1, 2018 to March 31, 2018 were adjusted in retained earnings.

The consolidated financial statements are stated in Japanese yen and, solely for the convenience of readers outside Japan, have been translated into U.S. dollars at the rate of ¥111 to \$1, the approximate exchange rate at March 31, 2019. The translations should not be construed as representations that the Japanese yen amounts have been, could have been, or could in the future be, converted into U.S. dollars at that or any other rate.

and excluded from the scope of consolidation subsidiaries from the fiscal year ended March 31, 2019.

b. Unification of Accounting Policies Applied to Foreign Subsidiaries for the Consolidated Financial Statements – Under Accounting Standards Board of Japan ("ASBJ") Practical Issues Task Force ("PITF") No. 18, "Practical Solution on Unification of Accounting Policies Applied to Foreign Subsidiaries for the Consolidated Financial Statements," the accounting policies and procedures applied to a parent company and its subsidiaries for similar transactions and events under similar circumstances should in principle be unified for the preparation of the consolidated financial statements. However, financial statements prepared by foreign subsidiaries in accordance with either International Financial Reporting Standards ("IFRS") or generally accepted accounting principles in the United States of America (Financial Accounting Standards Board Accounting Standards Codification) tentatively may be used for the consolidation process, except for the following items that should be adjusted in the consolidation process so that net income is accounted for in accordance with Japanese GAAP, unless they are not material: (a) amortization of goodwill; (b) scheduled

amortization of actuarial gain or loss of pensions that has been recorded in equity through other comprehensive income; (c) expensing capitalized development costs of R&D; and (d) cancellation of the fair value model of accounting for property, plant and equipment and investment properties and incorporation of the cost model of accounting.

c. Unification of Accounting Policies Applied to Foreign Associated Companies for the Equity Method – ASBJ Statement No.16, "Accounting Standard for Equity Method of Accounting for Investments," requires adjustments to be made to conform the associate's accounting policies for similar transactions and events under similar circumstances to those of the parent company when the associate's financial statements are used in applying the equity method, unless it is impracticable to determine such adjustments. In addition, financial statements prepared by foreign associated companies in accordance with either IFRS or generally accepted accounting principles in the United States of America tentatively may be used in applying the equity method if the following items are adjusted so that net income is accounted for in accordance with Japanese GAAP, unless they are not material: (a) amortization of goodwill; (b) scheduled amortization of actuarial gain or loss of pensions that has been recorded in equity through other comprehensive income; (c) expensing capitalized development costs of R&D; and (d) cancellation of the fair value model of accounting for property, plant and equipment and investment properties and incorporation of the cost model of accounting.

d. Business Combinations – Business combinations are accounted for using the purchase method. Acquisition-related costs, such as advisory fees or professional fees, are accounted for as expenses in the periods in which the costs are incurred. If the initial accounting for a business combination is incomplete by the end of the reporting period in which the business combination occurs, an acquirer shall report in its financial statements provisional amounts for the items for which the accounting is incomplete. During the measurement period, which shall not exceed one year from the acquisition, the acquirer shall retrospectively adjust the provisional amounts recognized at the acquisition date to reflect new information obtained about facts and circumstances that existed as of the

acquisition date and that would have affected the measurement of the amounts recognized as of that date. Such adjustments shall be recognized as if the accounting for the business combination had been completed at the acquisition date. A parent's ownership interest in a subsidiary might change if the parent purchases or sells ownership interests in its subsidiary. The carrying amount of noncontrolling interest is adjusted to reflect the change in the parent's ownership interest in its subsidiary while the parent retains its controlling interest in its subsidiary. Any difference between the fair value of the consideration received or paid and the amount by which the noncontrolling interest is adjusted is accounted for as capital surplus as long as the parent retains control over its subsidiary.

e. Cash Equivalents – Cash equivalents are short-term investments that are readily convertible into cash and exposed to insignificant risk of changes in value.

Cash equivalents include time deposits and government bonds that represent short-term investments, all of which mature or become due within three months of the date of acquisition.

f. Inventories – Inventories are principally stated at the lower of cost, determined by the average method, or net selling value.

g. Investment Securities – All of the Group's marketable securities are classified as available-for-sale securities and are reported at fair value, with unrealized gains and losses, net of applicable taxes, reported as a separate component of equity. The cost of securities sold is determined based on the moving-average method.

Nonmarketable available-for-sale securities are stated at cost determined by the moving-average method. For other-than-temporary declines in fair value, investment securities are reduced to net realizable value by a charge to income.

h. Property, Plant and Equipment – Property, plant and equipment are stated at cost. Depreciation of property, plant and equipment of the Group is mainly computed by the straight-line method based on the estimated useful lives of the assets. The range of useful lives is from 7 to 50 years for buildings and structures and from 4 to 17 years for machinery and equipment. Leased assets related to financial leases that do not transfer ownership rights are depreciated under the straight-line

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

a. Consolidation – The consolidated financial statements as of March 31, 2019, include the accounts of the Company and its 54 (56 in 2018) significant subsidiaries (collectively, the "Group").

Under the control and influence concepts, those companies over whose operations the Company, directly or indirectly, is able to exercise control are fully consolidated, and those associated companies over which the Group has the ability to exercise significant influence are accounted for by the equity method.

Investments in 20 (24 in 2018) associated companies are accounted for by the equity method.

Investments in the remaining unconsolidated subsidiaries and associated companies are stated at cost. Consolidating or accounting for those companies by the equity method would not have a significant effect on the consolidated financial statements.

The excess of cost of acquisition over the fair value of the net assets of acquired subsidiaries at the date of acquisition is amortized principally over a period of five years.

All significant intercompany balances and transactions are eliminated in consolidation. All material unrealized profit included in assets resulting from transactions within the Group is also eliminated.

GS Yuasa Finance Netherlands B. V. was liquidated

Notes to Consolidated Financial Statements

method based on the lease term as the useful life and assuming no residual value.

Under certain conditions such as exchanges of fixed assets of similar kinds and sales and purchases resulting from expropriation, Japanese tax laws permit companies to defer the profit arising from such transactions by reducing the cost of the assets acquired. Certain subsidiaries acquired property, plant and equipment, including buildings and structures, machinery and equipment, and funded construction in progress, through government grants. As of March 31, 2019 and 2018, the accumulated deducted cost of the assets acquired were ¥11,270 million (\$101,532 thousand) and ¥11,270 million, respectively.

i. Long-Lived Assets – The Group reviews its long-lived assets for impairment whenever events or changes in circumstance indicate the carrying amount of an asset or asset group may not be recoverable. An impairment loss is recognized if the carrying amount of an asset or asset group exceeds the sum of the undiscounted future cash flows expected to result from the continued use and eventual disposition of the asset or asset group. The impairment loss would be measured as the amount by which the carrying amount of the asset exceeds its recoverable amount, which is the higher of the discounted cash flows from the continued use and eventual disposition of the asset or the net selling price at disposition.

j. Land Revaluation – Under the “Law of Land Revaluation,” certain domestic subsidiaries elected a one-time revaluation of own-use land to a value based on a price which was published by the national tax office as of March 31, 2002. The resulting land revaluation excess represents unrealized appreciation of land and is stated, net of income taxes, as a component of equity. There was no effect on the consolidated statement of income. Continuous readjustment is not permitted unless the land value subsequently declines significantly such that the amount of the decline in value should be removed from the land revaluation excess account and related deferred tax liabilities. As of March 31, 2019, the carrying amount of the land after the above one-time revaluation exceeded the market value by ¥1,377 million (\$12,405 thousand).

k. Retirement Benefits – Certain consolidated subsidiaries have contributory and non-contributory funded defined benefit pension plans, defined contribution pension plans,

and unfunded retirement benefit plans for employees.

The Group accounted for the liability for retirement benefits based on projected benefit obligations and plan assets at the balance sheet date. The projected benefit obligations are attributed to periods on a straight-line basis. Actual gains and losses are amortized on a straight-line basis over 10 to 14 years, within the average remaining service period. Past service costs are amortized on a straight-line basis over 14 years, within the average remaining service period.

Retirement benefits to directors, Audit & Supervisory Board members, and executive officers of certain domestic subsidiaries are provided at the amount which would be required if all such persons retired at the balance sheet date.

l. Asset Retirement Obligations – An asset retirement obligation is recorded for a legal obligation imposed either by law or contract that results from the acquisition, construction, development, and normal operation of a tangible fixed asset and is associated with the retirement of such tangible fixed asset. The asset retirement obligation is recognized as the sum of the discounted cash flows required for the future asset retirement and is recorded in the period in which the obligation is incurred if a reasonable estimate can be made. If a reasonable estimate of the asset retirement obligation cannot be made in the period the asset retirement obligation is incurred, the liability should be recognized when a reasonable estimate of the asset retirement obligation can be made. Upon initial recognition of a liability for an asset retirement obligation, an asset retirement cost is capitalized by increasing the carrying amount of the related fixed asset by the amount of the liability. The asset retirement cost is subsequently allocated to expense through depreciation over the remaining useful life of the asset. Over time, the liability is accreted to its present value each period. Any subsequent revisions to the timing or the amount of the original estimate of undiscounted cash flows are reflected as an adjustment to the carrying amount of the liability and the capitalized amount of the related asset retirement cost.

m. Directors' Stockownership Plan – In accordance with PITF No. 30, “Practical Solution on Transactions of Delivering the Company's Own Stock to Employees etc. through Trusts,” upon transfer of treasury stock to the directors' stockownership trust (the “Trust”) by the entity, any difference between the book value and fair value of the treasury stock is recorded in capital surplus. At year-end, the Company records (1) the Company stock

held by the Trust as treasury stock in equity, (2) all other assets and liabilities of the Trust on a line-by-line basis, and (3) a liability/asset for the net of (i) any gain or loss on delivery of the stock by the Trust to the directors, (ii) dividends received from the entity for the stock held by the Trust, and (iii) any expenses relating to the Trust.

The Company introduced the directors' stockownership plan in order to increase corporate value and the business performance of directors in the medium and long term.

(1) Overview of transaction

The Trust, established by the Company, acquires Company shares using the cash contributed by the Company. The Company shares are transferred through the Trust to the directors, corresponding to points granted in conformity with the stock transfer policy established by the Board of Directors.

The Company shares shall be transferred upon the directors' retirement.

(2) Treasury stock remaining in the Trust

Shares of the Company remaining in the Trust are recorded as treasury stock under equity based on the book value (excluding incidental costs) in the Trust. The book value of the treasury stock and the number of shares at the end of the current fiscal year were ¥120 million (\$1,081 thousand) and 230,000 shares, respectively.

n. Research and Development Costs – Research and development costs are charged to income as incurred.

o. Leases – Finance lease transactions are capitalized by recognizing lease assets and lease obligations in the balance sheet.

p. Construction Contracts – Construction revenue and construction costs are recognized by the percentage-of-completion method if the outcome of a construction contract can be estimated reliably. When total construction revenue, total construction costs, and the stage of completion of the contract at the balance sheet date can be reliably measured, the outcome of a construction contract is deemed to be estimated reliably. If the outcome of a construction contract cannot be reliably estimated, the completed-contract method should be applied. When it is probable that the total construction costs will exceed total construction revenue, an estimated loss on the contract should be immediately recognized by providing for a loss on such construction contracts.

q. Income Taxes – The provision for income taxes is computed based on the pretax income included in the consolidated statement of income. The asset and liability approach is used to recognize deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the carrying amounts and the tax bases of assets and liabilities. Deferred taxes are measured by applying currently enacted income tax rates to the temporary differences.

On February 16, 2018, the ASBJ issued ASBJ Statement No. 28, “Partial Amendments to Accounting Standard for Tax Effect Accounting,” which requires deferred tax assets and deferred tax liabilities to be classified as investments and other assets and long-term liabilities, respectively. Deferred tax assets were classified as current assets and investments and other assets, and deferred tax liabilities were classified as current liabilities and long-term liabilities under the previous accounting standard. The revised accounting standard is effective for annual periods beginning on or after April 1, 2018. The Company retrospectively applied the revised accounting standard effective April 1, 2018, and deferred tax assets of ¥3,170 million which were previously classified as current assets and current liabilities, respectively, as of March 31, 2018, have been reclassified as investments and other assets and long-term liabilities, respectively, in the accompanying consolidated balance sheet.

r. Foreign Currency Transactions – All short-term and long-term monetary receivables and payables denominated in foreign currencies are translated into Japanese yen at the exchange rates at the balance sheet date. The foreign exchange gains and losses from translation are recognized in the consolidated statement of income to the extent that they are not hedged by forward exchange contracts.

s. Foreign Currency Financial Statements – The balance sheet accounts of the consolidated foreign subsidiaries are translated into Japanese yen at the exchange rate as of the balance sheet date except for equity, which is translated at the historical exchange rate. Differences arising from such translation are shown as “Foreign currency translation adjustments” under accumulated other comprehensive income in a separate component of equity. Revenue and expense accounts of the consolidated foreign subsidiaries are translated into Japanese yen at the annual average rates.

Notes to Consolidated Financial Statements

t. Derivatives and Hedging Activities – The Group uses foreign exchange forward contracts, foreign currency swaps, interest rate swaps, and commodity price swaps to manage its exposures to fluctuations in foreign exchange rates, interest rates, and material prices. The Group does not enter into derivatives for trading or speculative purposes.

All derivatives are recognized as either assets or liabilities and measured at fair value, and gains or losses on derivative transactions are recognized in the consolidated statement of income, and for derivatives used for hedging purposes, if such derivatives qualify for hedge accounting because of high correlation and effectiveness between the hedging instruments and the hedged items, gains or losses on those derivatives are deferred until maturity of the hedged transactions.

Interest rate swaps which qualify for hedge accounting and meet specific matching criteria are not remeasured at market value but the differential paid or received under the swap agreements is recognized and included in interest expense.

u. Per Share Information – Basic net income per share is computed by dividing net income attributable to common shareholders by the weighted-average number of common shares outstanding for the period, retroactively adjusted for stock splits.

Diluted net income per share reflects the potential dilution that could occur if stock acquisition rights incorporated in convertible bonds were exercised or converted into common stock. Diluted net income per share of common stock assumes full conversion of the outstanding convertible bonds at the beginning of the year (or at the time of issuance) with an applicable adjustment for related interest expense, net of tax, and full exercise of outstanding stock acquisition rights.

Cash dividends per share presented in the accompanying consolidated statement of income are the amounts applicable to the respective fiscal years including dividends to be paid after the end of the fiscal year.

v. Bond Issue Costs – Bond issue costs are amortized by the straight-line method over the bond term in accordance with ASBJ PITF No. 19, “Tentative Solution on Accounting for Deferred Assets,” which was issued by the ASBJ in August 2006.

w. New Accounting Pronouncements – On March 30, 2018, the ASBJ issued ASBJ Statement No. 29, “Accounting Standard for Revenue Recognition,” and

ASBJ Guidance No. 30, “Implementation Guidance on Accounting Standard for Revenue Recognition.”

(1) Overview

The International Accounting Standards Board (“IASB”) and the Financial Accounting Standards Board (“FASB”) have jointly developed and issued a new comprehensive revenue standard, “Revenue from Contracts with Customers” (IFRS 15 issued by IASB and Topic 606 issued by FASB), in May 2014.

As the basic policy, the ASBJ has developed the comprehensive accounting standards for revenue recognition in response to the fact that entities are required to apply IFRS 15 for annual periods beginning on or after January 1, 2018 and Topic 606 for annual periods beginning on or after December 15, 2017.

ASBJ has established the new accounting standard for revenue recognition based on the basic principles of IFRS 15, focusing on ensuring financial statement comparability. Also, the accounting convention for revenue recognition can take priority over the new accounting standard developed by ASBJ, within an acceptable range to ensure financial statement comparability.

(2) Schedule

The Company expects to adopt the accounting standard from the beginning of the fiscal year ending March 31, 2022.

(3) Impact of the adoption of accounting standard

The Company is currently evaluating the effect that the adoption of this guidance will have on its consolidated financial statements.

“Leases” (IFRS 16) and “Leases” (Accounting Standard Update (“ASU”) 2016-02 in Generally Accepted Accounting Principles in the United States of America.)**(1) Overview**

The new accounting standards require that lessees principally account for all leases on the balance sheet under a single model.

(2) Date of adoption

IFRS 16 will be applied from the beginning of the fiscal year ending March 31, 2020, and ASU 2016-02 will be applied from the beginning of the fiscal year ending March 31, 2021.

(3) Impact of the adoption of the implementation guidance

The Company is in the process of measuring the effects of applying the standards in future applicable periods.

3. INVENTORIES

Inventories at March 31, 2019 and 2018, consisted of the following:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Finished products	¥ 37,069	¥ 37,835	\$ 333,955
Work in process	16,870	16,621	151,982
Raw materials and supplies	13,889	15,287	125,126
Total	¥ 67,828	¥ 69,743	\$ 611,063

4. INVESTMENT SECURITIES

Investment securities as of March 31, 2019 and 2018, consisted of the following:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Non-current:			
Equity securities	¥ 26,841	¥ 26,672	\$ 241,811
Debt securities	29	29	261
Total	¥ 26,870	¥ 26,701	\$ 242,072

The costs and aggregate fair values of investment securities at March 31, 2019 and 2018, were as follows:

	Millions of Yen			
	2019			
	Cost	Unrealized Gains	Unrealized Losses	Fair Value
Securities classified as: Available-for-sale: Equity securities	¥ 5,170	¥ 21,180	¥ (96)	¥ 26,254

	Millions of Yen			
	2018			
	Cost	Unrealized Gains	Unrealized Losses	Fair Value
Securities classified as: Available-for-sale: Equity securities	¥ 5,259	¥ 20,875	¥ (49)	¥ 26,085

	Thousands of U.S. Dollars			
	2019			
	Cost	Unrealized Gains	Unrealized Losses	Fair Value
Securities classified as: Available-for-sale: Equity securities	\$ 46,577	\$ 190,811	\$ (865)	\$ 236,523

Notes to Consolidated Financial Statements

Available-for-sale securities whose fair value cannot be reliably determined at March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Non-current:			
Equity securities	¥ 587	¥ 587	\$ 5,288
Debt securities	29	29	262
Total	¥ 616	¥ 616	\$ 5,550

Proceeds from sales of available-for-sale securities sold during the year ended March 31, 2019, were ¥158 million (\$1,423 thousand), and realized gains from sales of available-securities sold during the year ended March 31, 2019 were ¥64 million (\$577 thousand).

Available-for-sale securities which were not sold during the year ended March 31, 2018.

Impairment losses on available-for-sale equity securities for the year ended March 31, 2018, were ¥98 million.

5. INVESTMENTS IN UNCONSOLIDATED SUBSIDIARIES AND ASSOCIATED COMPANIES

Investments in unconsolidated subsidiaries and associated companies at March 31, 2019 and 2018, consisted of the following:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Investments at cost	¥ 8,890	¥ 8,661	\$ 80,090
Equity in undistributed earnings	21,216	22,178	191,135
Total	¥ 30,106	¥ 30,839	\$ 271,225

6. LONG-LIVED ASSETS

The Group reviewed its long-lived assets for impairment as of March 31, 2019. As a result, the Group recognized an impairment loss of ¥275 million in total for certain assets used for business. The Group recognized ¥742 million (\$6,685 thousand) as loss on impairment of long-lived assets and including loss on liquidation of affiliated company as other expenses. Due to a downturn in profitability of that

business, the carrying amount of the assets was written down to the recoverable amount. The recoverable amount of the assets was measured at the net selling price estimated by its disposal price.

The Group reviewed its long-lived assets for impairment as of March 31, 2018. As a result, the Group did not recognize an impairment loss.

7. SHORT-TERM BANK LOANS AND LONG-TERM DEBT

As is customary in Japan, the Group obtains financing by discounting trade notes receivable with banks. Such discounted notes and the related contingent liabilities are not included in the consolidated balance sheet, but are disclosed as contingent liabilities (see Note 15).

At March 31, 2019, short-term bank loans of ¥363 million (\$3,270 thousand) were collateralized.

The weighted-average interest rates for the Group's short-term bank loans were 2.22% and 2.38% at March 31, 2019 and 2018, respectively.

Long-term debt at March 31, 2019 and 2018, consisted of the following:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Zero coupon convertible bonds due in March 2019		¥ 25,000	
Unsecured corporate bond due in September 2027	¥ 10,000	10,000	\$ 90,090
Unsecured corporate bond due in December 2023	10,000		90,090
Unsecured bank loans, maturing serially through 2019 with interest rates ranging from 0.0% to 1.3% (2019) and from 0.1% to 6.4% (2018)	35,548	26,465	320,252
Collateralized	200	341	1,802
Obligations under finance leases	1,874	1,760	16,883
Total	57,622	63,566	519,117
Less current portion	2,348	29,654	21,153
Long-term debt	¥ 55,274	¥ 33,912	\$ 497,964

Annual maturities of long-term debt at March 31, 2019, were as follows:

Year Ending March 31	Millions of Yen	Thousands of U.S. Dollars
2020	¥ 2,348	\$ 21,153
2021	6,495	58,514
2022	7,164	64,540
2023	1,624	14,631
2024	18,260	164,504
2025 and thereafter	21,731	195,775
Total	¥ 57,622	\$ 519,117

The carrying amounts of assets pledged as collateral for short-term borrowings and long-term debt at March 31, 2019, were as follows:

	Millions of Yen	Thousands of U.S. Dollars
Cash and cash equivalents	¥ 54	\$ 486
Trade accounts	600	5,405
Inventories	600	5,405
Building and structures	414	3,730
Machinery and equipment	15	135
Land	1,485	13,378
Other	93	839
Total	¥ 3,261	\$ 29,378

Notes to Consolidated Financial Statements

8. RETIREMENT BENEFITS

Certain consolidated subsidiaries have retirement benefit plans for employees. Under most circumstances, employees terminating their employment are entitled to benefit payments determined by reference to their rate of pay at the time of termination, years of service, and certain other factors. If the termination is involuntary or caused by death, the employee is usually entitled to greater payments than in the case of voluntary termination. Such retirement benefits are made in the form of a lump-sum severance payment from the Group and annuity payments from a trustee.

Certain domestic consolidated subsidiaries implemented a defined contribution pension plan for the

year ended March 31, 2019, by which the former defined benefit pension plan was terminated.

The Company applied accounting treatments specified in the guidance issued by the Accounting Standards Board of Japan. The effect of this transfer was to decrease income before income taxes by ¥52 million (\$468 thousand) and was recorded as other expenses in the statement of income for the year ended March 31, 2019.

The portions of the liability for retirement benefits attributable to directors, Audit & Supervisory Board members, and executive officers at March 31, 2019 and 2018, were ¥52 million (\$468 thousand) and ¥49 million, respectively.

(1) Changes in defined benefit obligation for the years ended March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Balance at beginning of year (as restated)	¥ 50,218	¥ 50,331	\$ 452,414
Current service cost	1,731	1,607	15,595
Interest cost	93	162	838
Actuarial (gains) losses	(535)	548	(4,820)
Benefits paid	(2,767)	(2,399)	(24,928)
Others	(332)	(31)	(2,991)
Balance at end of year	¥ 48,408	¥ 50,218	\$ 436,108

(2) Changes in plan assets for the years ended March 31, 2019 and 2018 were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Balance at beginning of year	¥ 55,964	¥ 51,133	\$ 504,180
Expected return on plan assets	855	735	7,703
Actuarial (losses) gains	(2,494)	2,101	(22,468)
Contributions from the employer	4,037	3,839	36,369
Benefits paid	(2,323)	(1,817)	(20,928)
Others	(237)	(27)	(2,135)
Balance at end of year	¥ 55,802	¥ 55,964	\$ 502,721

(3) A reconciliation between the liability recorded in the consolidated balance sheet and the balances of defined benefit obligation and plan assets is as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Defined benefit obligation	¥ 44,946	¥ 46,972	\$ 404,919
Plan assets	(55,802)	(55,964)	(502,721)
Total	(10,856)	(8,992)	(97,802)
Unfunded defined benefit obligation	3,461	3,246	31,181
Net assets arising from defined benefit obligation	¥ (7,395)	¥ (5,746)	\$ (66,621)

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Liability for retirement benefits	¥ 4,274	¥ 6,351	\$ 38,505
Assets for retirement benefits	(11,669)	(12,097)	(105,126)
Net assets arising from defined benefit obligation	¥ (7,395)	¥ (5,746)	\$ (66,621)

(4) The components of net periodic benefit costs for the years ended March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Service cost	¥ 1,731	¥ 1,608	\$ 15,595
Interest cost	93	162	838
Expected return on plan assets	(855)	(735)	(7,703)
Amortization of prior service cost	(105)	(190)	(946)
Recognized actuarial gains	(93)	(180)	(838)
Net periodic benefit costs	¥ 771	¥ 665	\$ 6,946

(5) Amounts recognized in other comprehensive income (before income tax effect) in respect of defined retirement benefit plans for the years ended March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Prior service cost	¥ (16)	¥ (189)	\$ (145)
Actuarial losses	2,059	1,414	18,550
Total	¥ 2,043	¥ 1,225	\$ 18,405

Notes to Consolidated Financial Statements

(6) Amounts recognized in accumulated other comprehensive income (before income tax effect) in respect of defined retirement benefit plans as of March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Unrecognized prior service cost	¥ 674	¥ 659	\$ 6,072
Unrecognized actuarial losses	(3,264)	(1,206)	(29,405)
Total	¥ (2,590)	¥ (547)	\$ (23,333)

(7) Plan assets

a. Components of plan assets

Plan assets as of March 31, 2019 and 2018, consisted of the following:

	2019	2018
Equity investments	43%	44%
General accounts	27	24
Debt investments	13	12
Investment trusts	9	9
Short-term assets	1	4
Others	7	7
Total	100%	100%

b. Method of determining the expected rate of return on plan assets

The expected rate of return on plan assets is determined considering the long-term rates of return which are expected currently and in the future from the various components of the plan assets.

(8) Assumptions used for the years ended March 31, 2019 and 2018, were set forth as follows:

	2019	2018
Discount rate	0.1%	0.1%
Expected rate of return on plan assets	2.0%	2.0%

The Group mainly uses a salary increase index determined in accordance with human resources and the wage policy as of the balance sheet date for expected future salary increase.

9. EQUITY

Japanese companies are subject to the Companies Act of Japan (the "Companies Act"). The significant provisions in the Companies Act that affect financial and accounting matters are summarized below:

a. Dividends

Under the Companies Act, companies can pay dividends at any time during the fiscal year in addition to the year-end dividend upon resolution at the shareholders' meeting. Additionally, for companies that meet certain criteria including (1) having a Board of Directors, (2) having independent auditors, (3) having an Audit & Supervisory Board, and (4) the term of service of the directors being prescribed as one year rather than the normal two-year term by its articles of incorporation, the Board of Directors may declare dividends (except for dividend-in-kind) at any time during the fiscal year if the company has prescribed so in its articles of incorporation. The Company meets all the above criteria and, accordingly, the Board of Directors may declare dividends (except for dividends-in-kind) at any time during the fiscal year.

Semiannual interim dividends may also be paid once a year upon resolution by the Board of Directors if the articles of incorporation of the company so stipulate. The Companies Act provides certain limitations on the amounts available for dividends or the purchase of treasury stock. The limitation is defined as the amount available for distribution to the shareholders, but the amount of net assets after dividends must be maintained at no less than ¥3 million.

b. Increases/Decreases and Transfer of Common Stock, Reserve, and Surplus

The Companies Act requires that an amount equal to 10% of dividends must be appropriated as a legal reserve (a component of retained earnings) or as additional paid-in capital (a component of capital surplus) depending on the equity account charged upon the payment of such dividends until the aggregate amount of legal reserve and additional paid-in capital equals 25% of the common stock. Under the Companies Act, the total amount of additional paid-in capital and legal reserve may be reversed without limitation. The Companies Act also provides that common stock, legal reserve, additional paid-in capital, other capital surplus, and retained earnings can be transferred among the accounts within equity under certain conditions upon resolution of the shareholders.

c. Treasury Stock and Treasury Stock Acquisition Rights

The Companies Act also provides for companies to purchase treasury stock and dispose of such treasury stock by resolution of the Board of Directors. The amount of treasury stock purchased cannot exceed the amount available for distribution to the shareholders, which is determined by a specific formula.

Under the Companies Act, stock acquisition rights are presented as a separate component of equity.

The Companies Act also provides that companies can purchase both treasury stock acquisition rights and treasury stock. Such treasury stock acquisition rights are presented as a separate component of equity or deducted directly from stock acquisition rights.

10. INCOME TAXES

The Company and its domestic subsidiaries are subject to Japanese national and local income taxes which, in the aggregate, resulted in a normal effective statutory tax rate

of approximately 30.5% for each of the years ended March 31, 2019 and 2018.

Notes to Consolidated Financial Statements

The tax effects of significant temporary differences and loss carryforwards which resulted in deferred tax assets and liabilities at March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Deferred tax assets:			
Accrued bonuses	¥ 1,389	¥ 1,296	\$ 12,514
Liability for retirement benefits	1,261	1,988	11,360
Write-down of investment securities	291	346	2,622
Unrealized profit	291	274	2,622
Tax loss carryforwards	12,781	12,644	115,144
Other	4,369	5,539	39,360
Subtotal	20,382	22,087	183,622
Less valuation allowance for tax loss carryforwards	(11,965)		(107,793)
Less valuation allowance for temporary differences	(2,240)		(20,180)
Total valuation allowance	(14,205)		(127,973)
Deferred tax assets	6,177	7,971	55,649
Deferred tax liabilities:			
Valuation excess of property	1,270	1,589	11,441
Unrealized gain on available-for-sale securities	6,235	6,137	56,171
Undistributed earnings of foreign subsidiaries	5,864	5,600	52,829
Other	2,373	2,764	21,379
Deferred tax liabilities	15,742	16,090	141,820
Net deferred tax liabilities	¥ (9,565)	¥ (8,119)	\$ (86,171)

Reconciliation between the normal effective statutory tax rates and the actual effective tax rates reflected in the accompanying consolidated statement of income for the years ended March 31, 2019 and 2018, were as follows:

	2019	2018
Normal effective statutory tax rate	30.5%	30.5%
Expenses not deductible for income tax purposes	0.9	1.2
Per capita levy	0.3	0.4
Net change in valuation allowance	0.4	(1.7)
Lower income tax rates applicable to income in certain foreign countries	(2.9)	(2.3)
Dividends of foreign subsidiaries and associated companies	1.2	1.2
Equity in earnings of unconsolidated subsidiaries and associated companies	(3.3)	0.8
Non-taxable dividend income	1.1	1.3
Unrecognized tax effects on eliminated intercompany unrealized profit	(0.1)	(0.1)
Foreign tax credit	0.8	1.0
Goodwill depreciation	1.8	1.8
Loss on impairment of investments in securities		(6.7)
Other – net	1.5	(1.3)
Actual effective tax rate	32.2%	26.1%

At March 31, 2019, certain subsidiaries had tax loss carryforwards aggregating approximately ¥41,653 million (\$375,252 thousand) which are available to be offset against taxable income of such subsidiaries in future years. These tax loss carryforwards, if not utilized, will expire as follows:

At March 31, 2019	Millions of Yen						Total
	1 Year or Less	After 1 Year through 2 Years	After 2 Years through 3 Years	After 3 Years through 4 Years	After 4 Years through 5 Years	After 5 Years	
Deferred tax assets relating to tax loss carryforwards	¥ 121	¥ 850	¥ 3,596	¥ 4,066	¥ 2,341	¥ 1,807	¥ 12,781
Less valuation allowances for tax loss carryforwards	(121)	(850)	(3,519)	(4,066)	(2,285)	(1,125)	(11,966)
Net deferred tax assets relating to tax loss carryforwards			77		57	681	815

At March 31, 2019	Thousands of U.S. Dollars						Total
	1 Year or Less	After 1 Year through 2 Years	After 2 Years through 3 Years	After 3 Years through 4 Years	After 4 Years through 5 Years	After 5 Years	
Deferred tax assets relating to tax loss carryforwards	\$ 1,090	\$ 7,658	\$ 32,396	\$ 36,631	\$ 21,090	\$ 16,279	\$ 115,144
Less valuation allowances for tax loss carryforwards	(1,090)	(7,658)	(31,703)	(36,631)	(20,586)	(10,134)	(107,802)
Net deferred tax assets relating to tax loss carryforwards			693		504	6,145	7,342

11. RESEARCH AND DEVELOPMENT COSTS

Research and development costs charged to income were ¥9,868 million (\$88,901 thousand) and ¥9,752 million for the years ended March 31, 2019 and 2018, respectively.

12. LEASES

The Group leases certain machinery, computer equipment, and other assets.

Total lease payments for the years ended March 31, 2019 and 2018, were ¥1,600 million (\$14,414 thousand) and ¥1,581 million, respectively.

Notes to Consolidated Financial Statements

The minimum rental commitments under noncancelable operating leases at March 31, 2019, were as follows:

	Millions of Yen	Thousands of U.S. Dollars
Due within one year	¥ 1,002	\$ 9,027
Due after one year	1,472	13,261
Total	¥ 2,474	\$ 22,288

13. FINANCIAL INSTRUMENTS AND RELATED DISCLOSURES

(1) Group Policy for Financial Instruments

The Group uses financial instruments, mainly bank loans, based on its capital financing plan. Derivatives are not used for speculative purposes, but to manage exposure to financial risks as described in (2) below.

(2) Nature and Extent of Risks Arising from Financial Instruments

Receivables such as trade notes and trade accounts are exposed to customer credit risk.

Marketable and investment securities, mainly equity instruments of customers and suppliers of the Group, are exposed to the risk of market price fluctuations.

Payment terms of payables, such as trade notes and trade accounts, are less than five months.

Maturities of bank loans, principally used for the purpose of funding investments and short-term working capital, are less than five years after the balance sheet date. A part of such bank loans is exposed to market risks from changes in variable interest rates.

The purchase price of lead, which is a raw material used in production, is exposed to the risk of market price fluctuations. This risk is mitigated by using commodity price swaps.

Derivatives mainly include forward foreign currency contracts, foreign currency swaps, interest rate swaps, and commodity price swaps, which are used to manage exposure to market risks from changes in foreign currency exchange rates, interest rates, and material prices. Please see Note 14 for more detail about derivatives.

(3) Risk Management for Financial Instruments

Credit risk is the risk of economic loss arising from a counterparty's failure to repay or service debt according to

the contractual terms. The Group manages its credit risk from receivables on the basis of internal guidelines, which include monitoring of payment terms and balances of major customers by each business administration department to identify the default risk of customers at an early stage. With respect to investment securities, the Group manages its exposure to market risk by monitoring market values and financial positions of issuers on a regular basis.

Liquidity risk comprises the risk that the Group cannot meet its contractual obligations in full on their maturity dates. The Group manages its liquidity risk by the monthly management of cash positions by the corporate finance division.

Foreign currency trade receivables and payables are exposed to market risk resulting from fluctuations in foreign currency exchange rates. Such foreign currency exchange rate risk is hedged principally by forward foreign currency contracts.

Interest rate swaps are used to manage exposure to market risks from changes in interest rates of loan payables.

Commodity price swaps are used to manage exposure to market risk from changes in prices of materials.

Derivative transactions are entered into and managed by the finance division based on internal guidelines, and the Business Auditing Office monitors observance of internal guidelines. The Company monitors the derivative transactions entered into by subsidiaries on a regular basis.

(4) Fair Values of Financial Instruments

Fair values of financial instruments are based on quoted prices in active markets. If the quoted price is not available, other rational valuation techniques are used instead. Also, please see Note 14 for the details of fair value for derivatives.

(a) Fair value of financial instruments

	Millions of Yen		
	Carrying Amount	Fair Value	Unrealized Gain (Loss)
March 31, 2019			
Cash and cash equivalents	¥ 23,409	¥ 23,409	
Time deposits	210	210	
Receivables:			
Trade notes	8,621	8,621	
Trade accounts	65,773	65,773	
Investment securities	26,475	26,475	
Investments in unconsolidated subsidiaries and associated companies	15,261	10,142	¥ (5,119)
Total	¥ 139,749	¥ 134,630	¥ (5,119)
Short-term bank loans	¥ 9,906	¥ 9,906	
Commercial papers	3,000	3,000	
Payables:			
Trade notes	20,597	20,597	
Trade accounts	31,679	31,679	
Income taxes payable	3,248	3,248	
Long-term debt:			
Corporate bonds	20,000	20,183	¥ (183)
Bank loans	34,034	33,779	255
Lease obligations	1,240	1,240	
Total	¥ 123,704	¥ 123,632	¥ 72
March 31, 2018			
Cash and cash equivalents	¥ 19,777	¥ 19,777	
Time deposits	186	186	
Receivables:			
Trade notes	6,621	6,621	
Trade accounts	73,298	73,298	
Investment securities	26,296	26,296	
Investments in unconsolidated subsidiaries and associated companies	14,788	7,273	¥ (7,515)
Total	¥ 140,966	¥ 133,451	¥ (7,515)
Short-term bank loans	¥ 17,464	¥ 17,464	
Payables:			
Trade notes	18,701	18,701	
Trade accounts	32,948	32,948	
Income taxes payable	3,005	3,005	
Long-term debt:			
Convertible bonds	25,000	25,203	¥ (203)
Corporate bonds	10,000	9,984	16
Bank loans	22,689	22,647	42
Lease obligations	1,223	1,223	
Total	131,030	¥ 131,175	¥ (145)

Notes to Consolidated Financial Statements

March 31, 2019	Thousands of U.S. Dollars		
	Carrying Amount	Fair Value	Unrealized Gain (Loss)
Cash and cash equivalents	\$ 210,892	\$210,892	
Time deposits	1,892	1,892	
Receivables:			
Trade notes	77,667	77,667	
Trade accounts	592,550	592,550	
Investment securities	238,514	238,514	
Investments in unconsolidated subsidiaries and associated companies	137,486	91,369	\$ (46,117)
Total	\$1,259,001	\$1,212,884	\$ (46,117)
Short-term bank loans	\$ 89,243	\$ 89,243	
Commercial papers	27,027	27,027	
Payables:			
Trade notes	185,559	185,559	
Trade accounts	285,396	285,396	
Income taxes payable	29,261	29,261	
Long-term debt:			
Corporate bonds	180,180	181,829	\$ (1,649)
Bank loans	306,613	304,315	2,298
Lease obligations	11,171	11,171	
Total	\$1,114,450	\$1,113,801	\$ 649

Cash and cash equivalents, Time deposits, and Receivables

The carrying values of cash and cash equivalents, time deposits, and receivables approximate fair value because of their short maturities.

Investment securities

The fair values of investment securities are measured at the quoted market price of the stock exchange for the equity instruments, and at the quoted price obtained from the financial institution for certain debt instruments. Fair value information for investment securities by classification is included in Note 4.

Short-term bank loans, Payables, and Income taxes payable

The carrying values of short-term bank loans, payables, and income taxes payable approximate fair value because of their short maturities.

Convertible bonds and Long-term debt

The fair values of convertible bonds are measured at the quoted price obtained from the financial institution for certain debt instruments.

The fair values of bank loans and lease obligations are determined by discounting the future cash flows at the Group's assumed corporate borrowing rate.

Derivatives

Fair value information for derivatives is included in Note 14.

(b) Carrying amount of financial instruments whose fair value cannot be reliably determined

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Investments in equity instruments that do not have a quoted market price in an active market	¥ 15,061	¥ 16,456	\$ 135,685

(5) Maturity Analysis for Financial Assets and Securities with Contractual Maturities

	Millions of Yen			
	2019		2018	
	Due in 1 Year or Less	Due after 1 Years through 5 Years	Due in 1 Year or Less	Due after 5 Years through 10 Years
Cash and cash equivalents	¥ 23,409		¥ 19,777	
Time deposits	210		186	
Receivables	74,394		79,979	
Investment securities:				
Available-for-sale securities with contractual maturities		¥ 29		¥ 29
Total	¥ 98,013	¥ 29	¥ 99,942	¥ 29

	Thousands of U.S. Dollars	
	2019	
	Due in 1 Year or Less	Due after 1 Years through 5 Years
Cash and cash equivalents	\$ 210,892	
Time deposits	1,892	
Receivables	670,217	
Investment securities:		\$ 261
Available-for-sale securities with contractual maturities		
Total	\$ 883,001	\$ 261

Please see Note 8 for annual maturities of long-term debt.

Notes to Consolidated Financial Statements

14. DERIVATIVES

The Group enters into foreign exchange forward contracts and foreign currency swaps to hedge foreign currency exchange rate risk associated with certain assets and liabilities denominated in foreign currencies. The Group also enters into interest rate swap contracts to manage interest rate exposures on certain liabilities and it enters into commodity price swap contracts to reduce the impact of price fluctuations of lead inventories.

All derivative transactions are entered into to hedge interest, foreign currency, and commodity price exposures incorporated within the Group's business.

Accordingly, market risk in these derivatives is generally offset by opposite movements in the value of the hedged assets or liabilities. The Group does not hold or issue derivatives for trading purposes.

Derivatives are subject to market risk. Market risk is the exposure created by potential fluctuations in market conditions, including interest or foreign currency exchange rates.

Derivative transactions entered into by the Group have been made in accordance with internal policies which regulate the authorization of such transactions.

Derivative Transactions to Which Hedge Accounting Is Not Applied

Millions of Yen				
At March 31, 2019	Contract Amount	Contract Amount Due after One Year	Fair Value	Unrealized Gain/Loss
Foreign currency forward contracts:				
Buying THB	¥ 1			
Selling EUR and GBP	1,998		¥ (18)	¥ (18)
THB	131			
AUD	536		(4)	(4)
NZD	211		(2)	(2)

Millions of Yen				
At March 31, 2018	Contract Amount	Contract Amount Due after One Year	Fair Value	Unrealized Gain/Loss
Foreign currency forward contracts:				
Selling EUR and GBP	¥ 1,639		¥ (19)	¥ (19)
THB	177		(1)	(1)
USD	151		2	2

Thousands of U.S. Dollars				
At March 31, 2019	Contract Amount	Contract Amount Due after One Year	Fair Value	Unrealized Gain/Loss
Foreign currency forward contracts:				
Buying THB	\$ 9			
Selling EUR and GBP	18,000		\$162	\$162
THB	1,180			
AUD	4,829		(36)	(36)
NZD	211		(18)	(18)

Derivative Transactions to Which Hedge Accounting Is Applied

Millions of Yen				
At March 31, 2019	Hedged Item	Contract Amount	Contract Amount Due after One Year	Fair Value
Interest rate swaps: (fixed rate payment, floating rate receipt)	Long-term debt interest	¥ 1,852	¥ 1,852	
Foreign currency forward contracts: (Buying USD)	Account receivables	110		¥ (0)

Millions of Yen				
At March 31, 2018	Hedged Item	Contract Amount	Contract Amount Due after One Year	Fair Value
Interest rate swaps: (fixed rate payment, floating rate receipt)	Long-term debt interest	¥ 1,852	¥ 1,852	

Thousands of U.S. Dollars				
At March 31, 2019	Hedged Item	Contract Amount	Contract Amount Due after One Year	Fair Value
Interest rate swaps: (fixed rate payment, floating rate receipt)	Long-term debt interest	\$16,685	\$16,685	
Foreign currency forward contracts: (Buying USD)	Account receivables	991		\$ (0)

The above interest rate swaps which qualify for hedge accounting and meet specific matching criteria are not remeasured at market value, but the differential paid or received under the swap agreements is recognized and included in interest expense or income. In addition, the fair value of such interest rate swaps in Note 14 is included in that of the hedged items (i.e., long-term debt).

The fair value of derivatives is measured at the quoted prices obtained from financial institutions.

The contract or notional amounts of derivatives which are shown in the preceding table do not represent the amounts exchanged by the parties and do not measure the Group's exposure to credit or market risk.

15. CONTINGENT LIABILITIES

At March 31, 2019, the Group had the following contingent liabilities:

	Millions of Yen	Thousands of U.S. Dollars
Endorsed notes	¥ 640	\$ 5,766
Guarantees of bank loans of certain associated companies	258	2,324

Notes to Consolidated Financial Statements

16. OTHER COMPREHENSIVE INCOME (LOSS)

The components of other comprehensive income (loss) for the years ended March 31, 2019 and 2018, were as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Unrealized gain on available-for-sale securities:			
Gains arising during the year	¥ 375	¥ 5,700	\$ 3,378
Reclassification adjustments to profit or loss	(64)		(576)
Amount before income tax effect	311	5,700	2,802
Income tax effect	(109)	(1,755)	(982)
Total	¥ 202	¥ 3,945	\$ 1,820
Deferred gain (loss) on derivatives under hedge accounting:			
(Losses) gains arising during the year	¥ (142)	¥ 13	\$ (1,279)
Reclassification adjustments to profit or loss	143	(15)	1,288
Amount before income tax effect	1	(2)	9
Income tax effect	0	1	0
Total	¥ 1	¥ (1)	\$ 9
Foreign currency translation adjustments:			
Adjustments arising during the year	¥ (511)	¥ 2,260	\$ (4,604)
Reclassification adjustments to profit or loss	(171)		(1,540)
Amount before income tax effect	(682)	2,260	(6,144)
Total	¥ (682)	¥ 2,260	\$ (6,144)
Defined retirement benefit plans:			
Adjustments arising during the year	¥ (1,839)	¥ 1,553	\$ (16,568)
Reclassification adjustments to profit or loss	(204)	(369)	(1,837)
Amount before income tax effect	(2,043)	1,184	(18,405)
Income tax effect	618	(363)	5,567
Total	¥ (1,425)	¥ 821	\$ (12,838)
Share of other comprehensive income (loss) in associates:			
(Losses) gains arising during the year	¥ (2,271)	¥ 1,218	\$ (20,460)
Total other comprehensive (loss) income	¥ (4,175)	¥ 8,243	\$ (37,613)

17. NET INCOME PER SHARE

A reconciliation of the differences between basic and diluted net income per share ("EPS") for the years ended March 31, 2019 and 2018, is as follows:

	Millions of Yen	Thousands of Shares	Yen	U.S. Dollars
	Net Income Attributable to Owners of the Parent	Weighted- Average Shares	EPS	
Year Ended March 31, 2019				
Basic EPS				
– Net income attributable to common shareholders	¥ 13,524	82,094	¥ 164.74	\$ 1.48
Effect of dilutive securities:				
Convertible bonds	(17)	5,569		
Diluted EPS – Net income for computation	¥ 13,507	87,663	¥ 154.08	\$ 1.39
Year Ended March 31, 2018				
Basic EPS				
– Net income attributable to common shareholders	¥ 11,450	82,430	¥ 138.90	
Effect of dilutive securities:				
Convertible bonds	(18)	5,875		
Diluted EPS – Net income for computation	¥ 11,432	88,305	¥ 129.46	

As noted in Note 2.m, the Company applied PITF No. 30, "Practical Solution on Transactions of Delivering the Company's Own Stock to Employees etc. through Trusts." In calculating the number of weighted-average shares above, the number of shares that are held by the Trust

(230,000 shares in 2019) is reflected.

Shares and per share figures have been restated, as appropriate, to reflect a one-for-five reverse stock split effected October 1, 2018.

Notes to Consolidated Financial Statements

18. SUBSEQUENT EVENTS

Appropriation of Retained Earnings

The following appropriation of retained earnings at March 31, 2019, was approved at the Company's shareholders' meeting held on June 27, 2019:

	Millions of Yen	Thousands of U.S. Dollars
Year-end cash dividends, ¥35 (\$0.32) per share	¥ 2,866	\$ 25,820

19. BUSINESS COMBINATION

(Transaction under common control)**a. Outline of the business combination**

- | | |
|---|--|
| <p>(1) Name of acquired company and its business outline
Name of acquired company:
GS Yuasa Energy Corporation
Business outline:
Lead-acid battery for automobiles business</p> | <p>(4) Name of the company after the combination
It has not changed.</p> |
| <p>(2) Date of business combination
September 28, 2018</p> | <p>(5) Other matters regarding outline of the transaction
GS Yuasa Corporation acquired an additional 14.9% of shares, and its equity ratio became 100%.</p> |
| <p>(3) Legal form of business combination
Share acquisition in consideration for cash</p> | |

b. Acquisition cost of the acquired company and related details of each class of consideration

		Millions of Yen	Thousands of U.S. Dollars
Consideration for acquisition	Cash	¥ 2,811	\$ 25,324
Acquisition costs		¥ 2,811	\$ 25,324

20. SEGMENT INFORMATION

Under the ASBJ Statement No. 17, "Accounting Standard for Segment Information Disclosures" and ASBJ Guidance No. 20, "Guidance on Accounting Standard for Segment Information Disclosures," an entity is required to report financial and descriptive information about its reportable segments. Reportable segments are operating segments or aggregations of operating segments that meet specified criteria. Operating segments are components of an entity about which separate financial information is available and such information is evaluated regularly by the chief operating decision maker in deciding how to allocate resources and in assessing performance. Generally, segment information is required to be reported on the same basis as is used internally for evaluating operating segment performance and deciding how to allocate resources to operating segments.

(1) Description of Reportable Segments

The Group's reportable segments are those for which separate financial information is available and regular evaluation by the Company's management is being performed in order to decide how resources are allocated among the Group. As such, the Group's reportable segments are as follows:

"Automotive Batteries (Japan)," consisting of manufacturing and marketing of lead-acid batteries for automobiles.

"Automotive Batteries (Overseas)," consisting of manufacturing and marketing of batteries overseas.

"Industrial Batteries and Power Supplies," consisting of manufacturing and marketing of industrial batteries and power supplies.

"Automotive Lithium-ion Batteries," consisting of manufacturing and marketing of lithium-ion batteries for vehicles.

(2) Methods of Measurement for the Amounts of Sales, Profit (Loss), Assets, and Other Items for Each Reportable Segment

The accounting policies of each reportable segment are consistent with those disclosed in Note 2, "Summary of Significant Accounting Policies."

The profit (loss) of each reportable segment is an operating profit (loss) before amortization of goodwill. The prices of the goods traded among the segments are mainly determined considering market prices or manufacturing costs.

(3) Matters Regarding Changes in Reportable Segments

The Company has implemented one of the important projects of its fourth mid-term business plan, which is called "Reorganization of organizational structure to focus on markets and customers," in order to respond to changes in the economic environment. Also, the Company has consolidated the Domestic Automotive Batteries department and the Overseas Operations department into the Automotive Batteries department. As a result, reportable segments are identified as "Automotive Batteries (Japan)," "Automotive Batteries (Overseas)," "Industrial Batteries and Power Supplies," and "Automotive Lithium-ion Batteries" in its financial statement.

Some overseas transaction of Industrial Batteries and Power Supplies were presented as "Automotive Batteries (Overseas)" in the previous fiscal year, had changed as "Industrial Batteries and Power Supplies" in the year ended March 31, 2019. Reportable segments in the previous fiscal year are presented as the new changed reportable segments.

Notes to Consolidated Financial Statements

(4) Information about Sales, Profit (Loss), Assets, and Other Items

Millions of Yen

	2019							Consolidated
	Automotive Batteries			Reportable Segments		Total	Other	
	Japan	Overseas	Total	Industrial Batteries and Power Supplies	Automotive Lithium-ion Batteries			
Sales:								
Sales to external customers	¥ 91,461	¥ 187,111	¥ 278,572	¥ 69,985	¥ 45,585	¥ 394,142	¥ 18,947	¥ 413,089
Intersegment sales of transfers	1,370	4,065	5,435	14,583	682	20,700	(20,700)	
Total	¥ 92,831	¥ 191,176	¥ 284,007	¥ 84,568	¥ 46,267	¥ 414,842	¥ (1,753)	¥ 413,089
Segment profit	¥ 7,766	¥ 10,559	¥ 18,325	¥ 7,317	¥ 301	¥ 25,943	¥ (876)	¥ 25,067
Segment assets	57,865	155,903	213,768	43,409	47,923	305,100	79,144	384,244
Other:								
Depreciation	1,774	4,353	6,127	1,266	4,388	11,781	6,040	17,821
Investment in equity method	1,085	28,929	30,014	111		30,125		30,125
Increase in property, plant and equipment and intangible assets	3,541	7,430	10,971	1,689	5,021	17,681	2,363	20,044
Impairment losses of assets		1,017	1,017			1,017		1,506
Amortization of goodwill	1,473	33	1,506			1,506		3,348
Goodwill – net	3,298	50	3,348			3,348		

Millions of Yen

	2018							Consolidated
	Automotive Batteries			Reportable Segments		Total	Other	
	Japan	Overseas	Total	Industrial Batteries and Power Supplies	Automotive Lithium-ion Batteries			
Sales:								
Sales to external customers	¥ 89,241	¥ 185,575	¥ 274,816	¥ 74,238	¥ 44,784	¥ 393,838	¥ 17,113	¥ 410,951
Intersegment sales of transfers	1,448	4,508	5,956	15,199	706	21,861	(21,861)	
Total	¥ 90,689	¥ 190,083	¥ 280,772	¥ 89,437	¥ 45,490	¥ 415,699	¥ (4,748)	¥ 410,951
Segment profit (loss)	¥ 6,143	¥ 8,960	¥ 15,103	¥ 7,365	¥ 1,321	¥ 23,789	¥ 287	¥ 24,076
Segment assets	53,843	157,780	211,623	40,829	45,427	297,879	91,337	389,216
Other:								
Depreciation	1,860	4,175	6,035	1,267	5,213	12,515	5,604	18,119
Investment in equity method	1,033	30,141	31,174	138	516	31,828		31,828
Increase in property, plant and equipment and intangible assets	2,362	6,360	8,722	1,115	1,361	11,198	4,605	15,803
Amortization of goodwill	1,217	33	1,250			1,250		1,250
Goodwill – net	4,259	91	4,350			4,350		4,350

Notes to Consolidated Financial Statements

Thousands of U.S. Dollars

	2019							Consolidated
	Reportable Segments						Other	
	Automotive Batteries		Total	Industrial Batteries and Power Supplies	Automotive Lithium-ion Batteries	Total		
Japan	Overseas							
Sales:								
Sales to external customers	\$ 823,973	\$ 1,685,685	\$ 2,509,658	\$ 630,495	\$ 410,676	\$ 3,550,829	\$ 170,694	\$ 3,721,523
Intersegment sales of transfers	12,342	36,622	48,964	131,378	6,144	186,486	(186,486)	
Total	\$ 836,315	\$ 1,722,307	\$ 2,558,622	\$ 761,873	\$ 416,820	\$ 3,737,315	\$ (15,792)	\$ 3,721,523
Segment profit	\$ 69,964	\$ 95,126	\$ 165,090	\$ 65,919	\$ 2,712	\$ 233,721	\$ (7,892)	\$ 225,829
Segment assets	521,306	1,404,532	1,925,838	391,072	431,739	2,748,649	713,009	3,461,658
Other:								
Depreciation	15,982	39,216	55,198	11,405	39,532	106,135	54,415	160,550
Investment in equity method	9,775	260,621	270,396	1,000		271,396		271,396
Increase in property, plant and equipment and intangible assets	31,901	66,937	98,838	15,216	45,234	159,288	21,289	180,577
Impairment losses of assets		9,162	9,162			9,162		9,162
Amortization of goodwill	13,270	298	13,568			13,568		13,568
Goodwill – net	29,712	450	30,162			30,162		30,162

Notes:

1. "Other" consists of business activities, such as special batteries that are not included as a reportable segment, or adjustments of segment profit (loss).

2. The main details of adjustments were as follows:

(1) Adjustments of segment profit for the years ended March 31, 2018 and 2017, were ¥2,325 million (\$21,934 thousand) and ¥2,449 million, respectively. The details of the adjustments are as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Elimination of intersegment transactions	¥ 1,482	¥ 1,304	\$ 13,351
Company-wide expenses	995	1,021	8,964
Total	¥ 2,477	¥ 2,325	\$ 22,315

Company-wide expenses mainly consist of general administrative expenses not attributable to any reportable segments.

(2) Adjustments of segment assets for the years ended March 31, 2019 and 2018, were ¥68,006 million (\$612,667 thousand) and ¥91,384 million, respectively. The details of the adjustments are as follows:

	Millions of Yen		Thousands of U.S. Dollars
	2019	2018	2019
Elimination of intersegment transactions	¥ (94,070)	¥ (84,886)	\$ (847,477)
Company-wide assets	162,076	176,270	1,460,144
Total	¥ 68,006	¥ 91,384	\$ 612,667

Company-wide assets mainly consist of managing cash surplus, assets of administrative departments, and certain equipment of the research institute.

(3) Adjustments of depreciation for the years ended March 31, 2019 and 2018, were ¥4,631 million (\$41,721 thousand) and ¥4,225 million, respectively. The adjustments consisted of depreciation of Company-wide assets.

(4) Adjustments to "Increase in property, plant and equipment and intangible assets" for the years ended March 31, 2019 and 2018, were ¥1,960 million (\$17,658 thousand) and ¥4,111 million, respectively. The adjustments consisted of the purchase amount of property, plant and equipment and intangible assets classified as Company-wide assets.

3. The difference between the segment profit listed above and operating income in the consolidated statement of income, ¥25,067 million (\$225,829 thousand) and ¥22,654 million (\$204,090 thousand), respectively, resulted from the amortization of goodwill and other intangible assets of ¥2,412 million (\$21,730 thousand). The goodwill and other intangible assets include identifiable assets acquired on the effective date of the business combination.

4. At March 31, 2019, the Group recognized an impairment loss of ¥1,017 million (\$9,162 thousand) in total as loss on impairment of long-lived assets.

Notes to Consolidated Financial Statements

(5) Information about Geographical Areas

(a) Sales

Millions of Yen				
2019				
Japan	Asia	Europe and North America	Other	Total
¥ 209,119	¥ 111,513	¥ 63,483	¥ 28,974	¥ 413,089

Millions of Yen				
2018				
Japan	Asia	Europe and North America	Other	Total
¥ 206,026	¥ 110,365	¥ 66,233	¥ 28,327	¥ 410,951

Thousands of U.S. Dollars				
2019				
Japan	Asia	Europe and North America	Other	Total
\$ 1,883,955	\$ 1,004,622	\$ 571,919	\$ 261,027	\$ 3,721,523

Note: Sales are classified by country or region based on the location of customers.

(b) Property, plant and equipment

Millions of Yen				
2019				
Japan	Asia	Europe and North America	Other	Total
¥ 87,956	¥ 30,214	¥ 4,180	¥ 1,851	¥ 124,201

Millions of Yen				
2018				
Japan	Asia	Europe and North America	Other	Total
¥ 89,292	¥ 29,231	¥ 2,401	¥ 1,923	¥ 122,847

Thousands of U.S. Dollars				
2019				
Japan	Asia	Europe and North America	Other	Total
\$ 792,396	\$ 272,198	\$ 37,658	\$ 16,675	\$ 1,118,927

Deloitte.

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INDEPENDENT AUDITOR'S REPORT

To the Board of Directors of GS Yuasa Corporation:

We have audited the accompanying consolidated balance sheet of GS Yuasa Corporation and its consolidated subsidiaries as of March 31, 2019, and the related consolidated statements of income, comprehensive income, changes in equity, and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information, all expressed in Japanese yen.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in Japan, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of GS Yuasa Corporation and its consolidated subsidiaries as of March 31, 2019, and the consolidated results of their operations and their cash flows for the year then ended in accordance with accounting principles generally accepted in Japan.

Convenience Translation

Our audit also comprehended the translation of Japanese yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made in accordance with the basis stated in Note 1 to the consolidated financial statements. Such U.S. dollar amounts are presented solely for the convenience of readers outside Japan.

Deloitte Touche Tohmatsu LLC

June 27, 2019

Member of
Deloitte Touche Tohmatsu Limited

Corporate Information

As of March 31, 2019

Corporate Information

Corporate Name	GS Yuasa Corporation
Head Office	1, Inobanba-cho, Nishinosh, Kisshoin, Minami-ku, Kyoto 601-8520, Japan Tel: +81-75-312-1211
Tokyo Office	1-7-13, Shiba-koen, Minato-ku, Tokyo 105-0011, Japan Tel: +81-3-5402-5800
Business	Formulating management plans and strategies for the GS Yuasa Group and administering Group companies to enhance the total value of the Group
Establishment	April 1, 2004
Capital Stock	¥33.0 billion
Number of Employees	Consolidated: 14,217

Group Companies

Japan

GS Yuasa International Ltd.	GS Yuasa Lighting Service Co., Ltd.
GS Yuasa Battery Ltd.	GS Yuasa Socie Co., Ltd.
GS Yuasa Technology Ltd.	GS KASEI KOGYO Co., Ltd.
GS Yuasa Accounting Service Ltd.	GS Ibaraki Works, Ltd.
GS Yuasa Energy Co., Ltd.	GS Environmental Science Laboratories Co., Ltd.
Lithium Energy Japan	Yuasa Membrane Systems Co., Ltd.
Blue Energy Co., Ltd.	Iwaki Yuasa Ltd.
GS Yuasa Power Fieldings Ltd.	Yuasa Chemical Co., Ltd.
Hokkaido GS Yuasa Service Ltd.	YUASA ELECTRIC CO., LTD.
GS Yuasa Innovation Co., Ltd.	

Overseas

USA

GS Yuasa Energy Solutions, Inc.
GS Yuasa Lithium Power, Inc.
Yuasa Battery, Inc.

UK

GS Yuasa Battery Europe Ltd.

HUNGARY

GS Yuasa Hungary Ltd.

TURKEY

Inci GS Yuasa Aku Sanayi ve Ticaret Anonim Sirketi

CHINA

Yuasa Battery (Guangdong) Co., Ltd.
Yuasa Battery (Shunde) Co., Ltd.
Tianjin Yuasa Batteries Co., Ltd.
Tianjin GS Battery Co., Ltd.
Tianjin Toho Lead Recycling Co., Ltd.
GS Battery (China) Co., Ltd.
Shanghai GS Toptiger Motive Power Co., Ltd.

TAIWAN

Taiwan Yuasa Battery Co., Ltd.
GS Battery Taiwan Co., Ltd.

THAILAND

GS Yuasa Asia Technical Center Ltd.
Yuasa Battery (Thailand) Pub. Co., Ltd.
Siam GS Battery Co., Ltd.
GS Yuasa Siam Industry Ltd.
GS Yuasa Siam Sales Ltd.

MALAYSIA

GS Yuasa Battery Malaysia Sdn. Bhd.

VIETNAM

GS Battery Vietnam Co., Ltd.

INDONESIA

PT. Yuasa Battery Indonesia
PT. GS Battery
PT. Trimitra Baterai Prakasa

PAKISTAN

Atlas Battery Ltd.

INDIA

Tata AutoComp GY Batteries Private Limited

AUSTRALIA

Century Yuasa Batteries Pty Ltd.

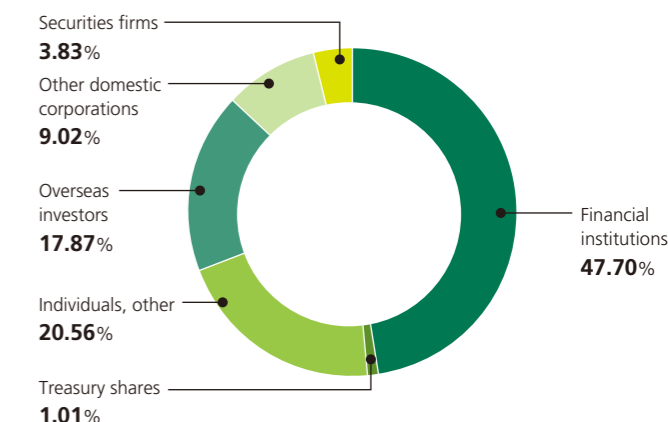
Stock Information

As of March 31, 2019

Stock Information

Fiscal Year-End	March 31
Number of Shares Authorized	280,000,000
Number of Shares Issued	82,714,942
Shares per Trading Unit	100
Number of Shareholders	35,595
Transfer Agent	Sumitomo Mitsui Trust Bank, Limited
Listed Securities Exchange	First Section of the Tokyo Stock Exchange
Method of Public Notice	Notification is given electronically on the Company's website. However, if a public announcement cannot be made electronically, it will be placed in the Nihon Keizai Shimbun newspaper.

Shareholdings by Type of Shareholder



Principal Shareholders

Name	Number of Shares Held (thousands)	As a Proportion of Shares Issued (%)
The Master Trust Bank of Japan, Ltd. (Trust Account)	8,229	10.05
Japan Trustee Services Bank, Ltd. (Trust Account)	5,068	6.19
Meiji Yasuda Life Insurance Company	2,800	3.42
Toyota Motor Corporation	2,236	2.73
MUFG Bank, Ltd.	1,865	2.28
Nippon Life Insurance Company	1,789	2.19
The Bank of Kyoto, Ltd.	1,548	1.89
Sumitomo Mitsui Trust Bank, Limited	1,470	1.80
Sumitomo Mitsui Banking Corporation	1,421	1.74
Japan Trustee Services Bank, Ltd. (Trust Account 5)	1,408	1.72

Stock Price and Trading Volume



Note: On October 1, 2018, the Company implemented a share consolidation, converting five shares to one share, and changed the number of shares in one trading unit to 100 shares. From that time, share trades have been conducted in units (100 post-consolidation shares) with the assumption that these changes took effect. In conjunction with this, share prices and share trading volumes are indicated assuming that the share consolidation was implemented on April 1, 2018.