



Japan Credit Rating Agency, Ltd. (JCR) publishes its Second Party Opinion on the Sustainability Linked Finance Framework as follows:

## GS Yuasa Corporation

### Sustainability Linked Finance Framework

#### Assignment

<Evaluation Results>

This framework aligns to the Sustainability Linked Bond Principles, Sustainability Linked Loan Principles and MOE Guidelines.

Issuer/Borrower	GS Yuasa Corporation (Stock code: 6674)
Subject	GS Yuasa Corporation Sustainability Linked Finance Framework

#### Summary

Japan Credit Rating Agency, Ltd. (JCR) confirms the conformity of the Sustainability Linked Finance Framework (this Framework) formulated by GS Yuasa Corporation (GS Yuasa) with the Sustainability Linked Bond Principles<sup>1</sup>, Sustainability Linked Loan Principles<sup>2</sup>, Sustainability Linked Bond Guidelines<sup>3</sup> and Sustainability Linked Loan Guidelines<sup>4</sup> (collectively, the "SLBP, etc."). In order to ensure the transparency and objectivity of the evaluation as recommended by the SLBP and other standards, JCR, as an independent third-party organization, has reviewed GS Yuasa's sustainability strategy, the key performance indicators (KPIs) and sustainability performance targets (SPTs) set out in the framework, as well as the characteristics, reporting and verification of the bonds/loans.

<sup>1</sup> "Sustainability-Linked Bond Principles 2024" by International Capital Market Association (ICMA) at <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/sustainability-linked-bond-principles-slbp/>

<sup>2</sup> "Sustainability Linked Loan Principle 2023" by Asia Pacific Loan Market Association (APLMA), Loan Market Association (LMA), Loan Syndications and Trading Association (LSTA) at <https://www.lsta.org/content/sustainability-linked-loan-principles-sllp/>

<sup>3</sup> "Sustainability Link Bond Guidelines 2022" by Ministry of the Environment at <https://www.itvn.go.jp/content/000062495.pdf>

<sup>4</sup> "Sustainability Link Loan Guidelines 2022" by Ministry of the Environment at <https://www.itvn.go.jp/content/000062495.pdf>

## **1) Overview of GS Yuasa**

GS Yuasa Corporation is a holding company established in 2004 through the transfer of shares between the former Japan Battery and the former Yuasa Corporation following their business integration. The company's current business segments are automotive battery business (Japan), automotive battery business (overseas), industrial battery and power supply business, automotive lithium-ion battery business, specialized batteries and others. Sales for FY 2023 was 562.9 billion yen, an increase of 8.7% from the previous year (517.7 billion yen). Looking at the breakdown of sales by business segment, the automotive battery business (overseas) had the highest sales, and by region, sales were split equally between Japan and overseas. The company has the second largest share of the global market for automotive lead-acid batteries, the largest share domestically and in the ASEAN region, and the largest share of the global market for lead-acid batteries for motorcycles.

## **2) GS Yuasa's Sustainability Strategy**

GS Yuasa's corporate philosophy is to contribute to people, society, and the global environment through "Innovation and Growth" of its employees and business entities, and it aims to deliver comfort and peace of mind to customers around the world through the advanced energy technology it has cultivated in batteries. In order to realize its corporate philosophy, GS Yuasa has formulated a long-term vision for 2035 called "Vision 2035," and has indicated its intention to focus on two areas: "mobility" and "public infrastructure," with the four keywords "Re" (Reborn, Renewable, Reliable and Respect).

In particular, regarding "Renewable," one of the four "Re", the company announced "GY 2050 Carbon Neutrality Target" at the same time as announcing "Vision 2035," and made a carbon neutral declaration by 2050 (Scope 1, 2). As specific milestones for achieving the carbon neutral declaration, the company has set CO<sub>2</sub> emission reduction targets for FY 2030 (GY 2030 Long-Term Greenhouse Gas Target) and CO<sub>2</sub> emission reduction targets in its medium-term management plan (FY 2023-2025). These are the goals associated with the KPIs of this framework.

In addition, the CO<sub>2</sub> emission reduction targets in the above-mentioned medium-term management plan are materiality targets identified by GS Yuasa. By implementing business processes that incorporate materiality into its long-term vision and medium-term management plans, GS Yuasa aims to improve the quality of its management in both financial and non-financial aspects and achieve sustainable growth for its business and society.

### 3) Setting KPI and SPT

GS Yuasa has set the following KPIs and SPTs in this framework.

KPI: Reduction of CO <sub>2</sub> emissions volume (total amount, Scope 1, 2)				
SPT: Annual targets toward or higher reduction in CO <sub>2</sub> emissions volume by FY 2030 (compared to FY 2018)				
[Annual CO <sub>2</sub> emission reduction targets]				
Fiscal year	2027	2028	2029	2030
Reduction rate (compared to FY 2018)	21%	24%	27%	30%

JCR evaluated that the selected KPIs are meaningful for the following reasons:

- KPI is positioned as one of the business strategies to address important management issues for the entire group.
- The government enhance the industrial sector to reduce GHG emission, which accounts for approximately 30% of Japan's total GHG emissions.
- The industry that GS Yuasa belongs to places importance on reducing CO<sub>2</sub> emissions.

Regarding the SPT, JCR evaluated that it is an ambitious goal for the following reasons:

- This is an industry in which fluctuations in production volume are directly linked to CO<sub>2</sub> emissions, and as production volume is expected to increase in order to promote the GX strategy, it is necessary to accelerate efforts more than ever before.
- The target of reducing CO<sub>2</sub> emissions by 30% over the 12-year period from FY 2018 to FY 2030 is a 2.5% annual reduction, which meets the WB 2°C standard for SBT.
- Comparing to the national industrial sector target is used as a benchmark, GS Yuasa's target is more ambitious than that.

JCR confirmed that the characteristics of the bonds/loans to be procured under this framework include provisions for changing the financial characteristics depending on the achievement of the SPT. In addition, the method of linking financial characteristics according to the SPT achievement status and the content of reporting after implementation have also been appropriately planned.

Based on the above, JCR has confirmed that this framework aligns to the SLBP etc.

## I. Position and purpose of Second Party Opinions

JCR conducted a third-party evaluation of this framework in accordance with the SLBP and other principles and guidelines. A sustainability-linked bond/loan aims to encourage issuers/borrower to contribute to the realization of a sustainable society by providing incentives for the achievement of ambitious SPTs set by the issuer/borrower in advance. The SLBP consists of five core elements: KPI selection, SPT measurement, bond/loan characteristics, reporting, and verification. The role of JCR as an independent third-party organization is to confirm the conformity of this framework with the SLBP, etc., in order to ensure the transparency and objectivity of the evaluation recommended in the principles, etc.

## II. Summary of Second Party Opinion

This second party opinion is an opinion expression for this Framework formulated by GS Yuasa on August 2024 and is composed of the following items.

1. Sustainability strategies of GS Yuasa
2. Selection of KPI
3. Calibration of SPT
4. Characteristics of bonds/loans
5. Reporting/Verification
6. Conclusions on alignment with the SLBP and so on.

### III. Conformity to SLBP etc.

#### I. Sustainability strategies of GS Yuasa

##### (1) Company Overview

GS Yuasa Corporation is a holding company established in 2004 through the transfer of shares between the former Japan Battery and the former Yuasa Corporation following their business integration. In October 2016, GS Yuasa acquired shares in Panasonic Storage Battery based on a share transfer agreement for the acquisition of Panasonic's lead-acid battery business, making it a consolidated subsidiary and changing the company name to GS Yuasa Energy. In addition, it signed a share transfer agreement to acquire Sanken Electric's social infrastructure business in order to improve the competitiveness of our industrial battery and power supply business in August 2020. In May 2021, it acquired all shares of Sanken Densetsu Co., Ltd. The company's current business segments are automotive battery business (Japan), automotive battery business (overseas), industrial battery and power supply business, automotive lithium-ion battery business, specialized batteries and others. An overview of each business segment is as follows:

- Automotive battery business (Japan)

It manufactures and sells lead-acid batteries for domestic automobiles and motorcycles. It develops high-performance, high-quality batteries for starting and auxiliary equipment for eco-friendly vehicles such as vehicles with idling stop systems (ISS) and HEVs (hybrid electric vehicles).

- Automotive battery business (overseas)

It manufactures and sells lead-acid batteries for automobiles, motorcycles, and industrial use at 37 locations in 19 countries around the world, including Europe, the United States, and Australia, with a focus on the ASEAN region, including Thailand and Indonesia.

- Industrial battery and power supply business

It manufactures and sells industrial batteries and power supply devices for power backup at mobile phone base stations, buildings, water supply and storage systems, power plants, and other public infrastructure facilities, renewable energy storage systems (equipped with lithium-ion batteries) and lead-acid batteries for forklifts and other electric vehicles.

- Automotive lithium-ion battery business

It manufactures and sells lithium-ion batteries for vehicles, which are used in BEVs (battery electric vehicles), PHEVs (plug-in hybrid electric vehicles), HEVs and other eco-friendly vehicles.

- Specialized Batteries and Others

It develops, manufactures and sells special-purpose batteries and power supplies, including lithium-ion batteries, which are used in a wide range of fields, from the deep sea to outer space, including manned submersible research vessels, artificial satellites, and rockets.

Sales for FY 2023 are expected to be 562.9 billion yen, an increase of 8.7% from the previous year (517.7 billion yen). Looking at the breakdown of sales by business segment, the automotive battery business (overseas) had the highest sales, and by region, sales were split equally between Japan and overseas. The company has the second largest share of the global market for automotive lead-acid batteries, the largest share domestically and in the ASEAN region, and the largest share of the global market for lead-acid batteries for motorcycles. Regarding the main automotive battery business (overseas), it is expected that the sales are likely to continue expanding as the supply chain disruptions have been resolved and the economic downturn in the ASEAN region has recovered.

Additionally, with regard to the industrial battery and power supply business, production volume is expected to increase, mainly due to the growing demand for stationary storage batteries due to the spread of renewable energy. Regarding the automotive lithium-ion battery business, sales are expected to increase due to a certain level of demand for HEVs, an expected increase in production volume due to the expansion of PHEV vehicle models, and the assumption that sales of BEVs will eventually return to a recovery trend despite the slowdown globally except in some regions.

■ Sales Composition by Business Segments

■ Sales Composition by Region

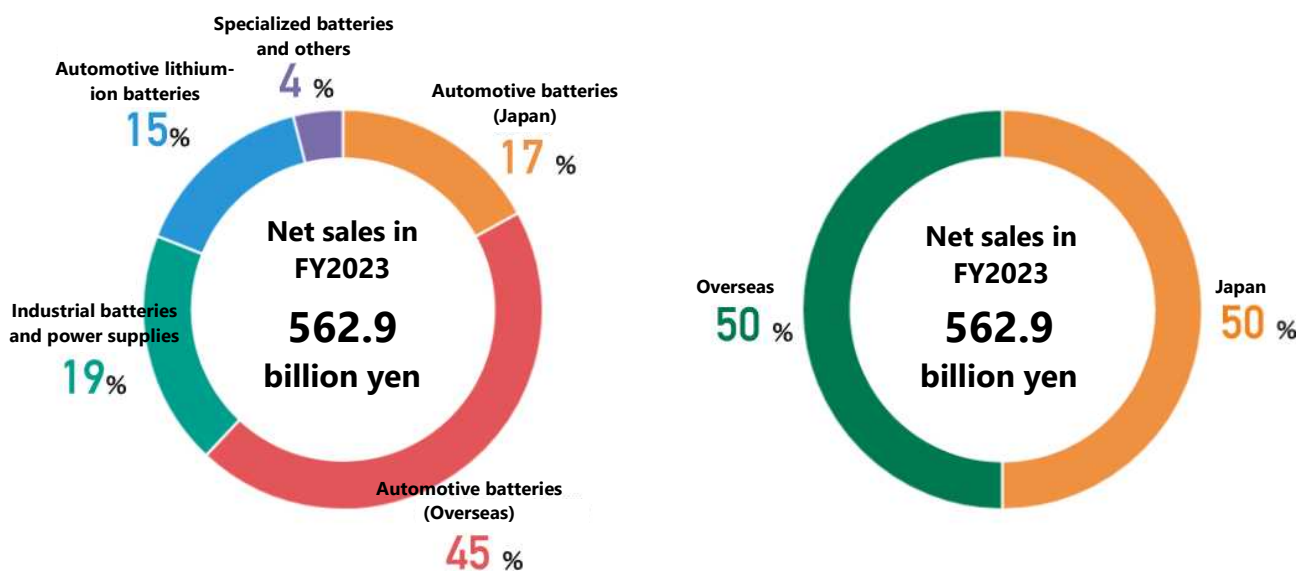


Figure 1: Sales composition by business segment and by region<sup>5</sup>

**(2) Corporate Philosophy/Sustainability Management Policy**

GS Yuasa's corporate philosophy is to contribute to people, society, and the global environment through "Innovation and Growth" of its employees and business entities, and it aims to deliver comfort and peace of mind to customers around the world through the advanced energy technology it has cultivated in batteries. The company aims to realize a sustainable society and increase its corporate value by adhering to the following Sustainability Management Policy.

<sup>5</sup> Source: GS Yuasa website <https://www.gs-yuasa.com/jp/ir/individual/03.php>

1. **We will strive to help address the challenges to sustainability and seek lasting growth together with the community.**
2. **We will pursue fair and healthy business practices, and maintain steadfast business foundations able to support sustained growth.**
3. **We will strive to earn the understanding and trust of a diverse range of stakeholders through dialogue.**

**(3) Long-term vision**

In response to the global movement toward carbon neutrality, GS Yuasa has formulated a long-term vision for the year 2035 called "Vision 2035." GS Yuasa expects that global demand for storage batteries, the company's business environment, will expand rapidly from 230GWh in 2019 to approximately 10,000GWh in 2050, against the backdrop of efforts to achieve carbon neutrality. In particular, GS Yuasa anticipates increased demand for lithium-ion batteries for BEVs and for regular use. In order to respond to the rapid expansion in demand for storage batteries, GS Yuasa has set out in its "Vision for GS Yuasa in 2035" a goal of achieving "innovation and growth" on the two axes of "mobility" and "public infrastructure," with the four keywords "Re (Reborn, Renewable, Reliable, Respect)."

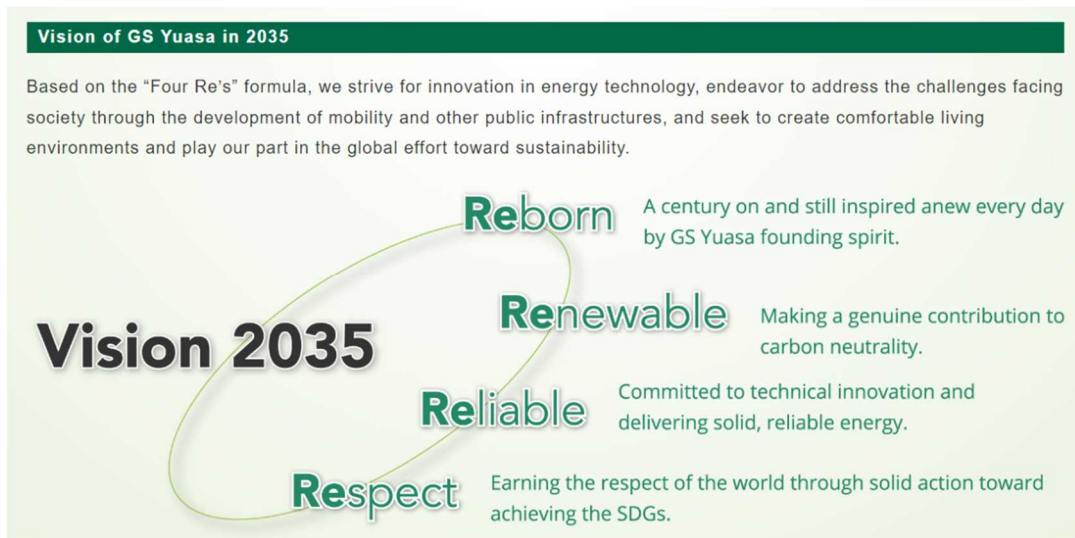


Figure 2: GS Yuasa's vision for 2035<sup>6</sup>

<sup>6</sup> Source: GS Yuasa website <https://ir.gs-yuasa.com/en/ir/management/plan.html>

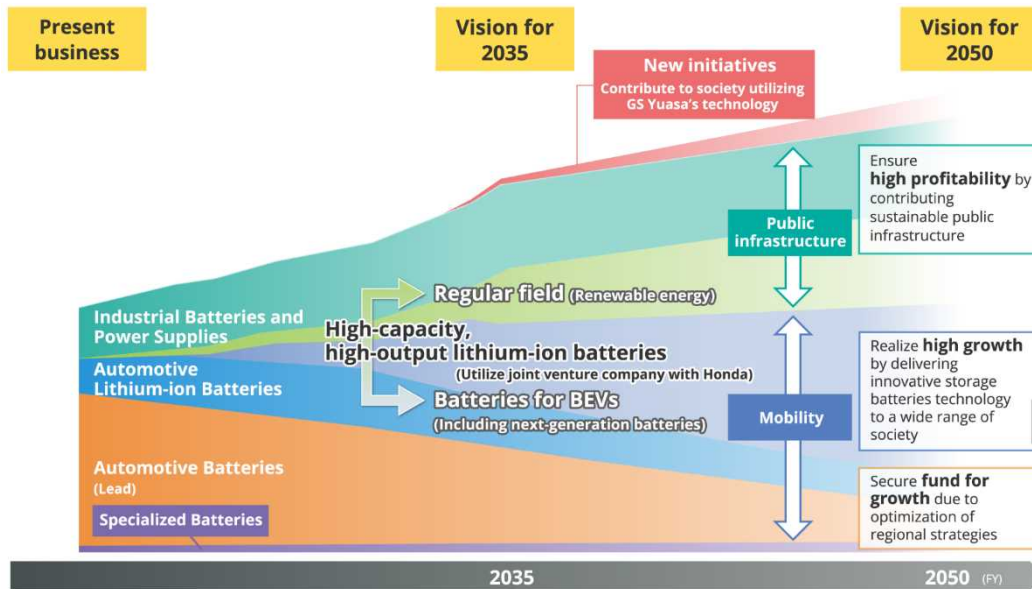


Figure 3: Image of business restructuring<sup>7</sup>

#### (4) Long-term Environmental Goals

In its "Vision 2035" announced in April 2023, GS Yuasa set the goal of "Renewable: Making a genuine contribution to carbon neutrality" and has declared itself to be carbon neutral by 2050 (Scope 1, 2). GS Yuasa expressed support for the recommendations of Task Force on Climate-related Financial Disclosures (TCFD) in December 2019 and published "GY 2030 Long-Term Greenhouse Gas Target" in FY 2021, recognizing that climate-related issues are one of our key challenges for business management.

"GY 2030 Long-Term Greenhouse Gas Target" sets a target of "reducing CO<sub>2</sub> emissions by 30% or more by FY 2030 (compared to FY 2018)," which is the SPT of this framework. The target was set to meet the well below 2 degree standard (annual reduction of 2.5%) certified by SBTi. Even after the publication of "GY 2030 Long-Term Greenhouse Gas Target," the company aims to achieve carbon neutrality by 2050 by taking measures such as further energy conservation, promoting renewable energy power generation, and procuring renewable energy. At the same time, GS Yuasa hopes to contribute to reduce CO<sub>2</sub> emissions across society (Scope 3) with the products it supplies.

<sup>7</sup> Source: GS Yuasa website <https://ir.gs-yuasa.com/en/ir/management/plan.html>



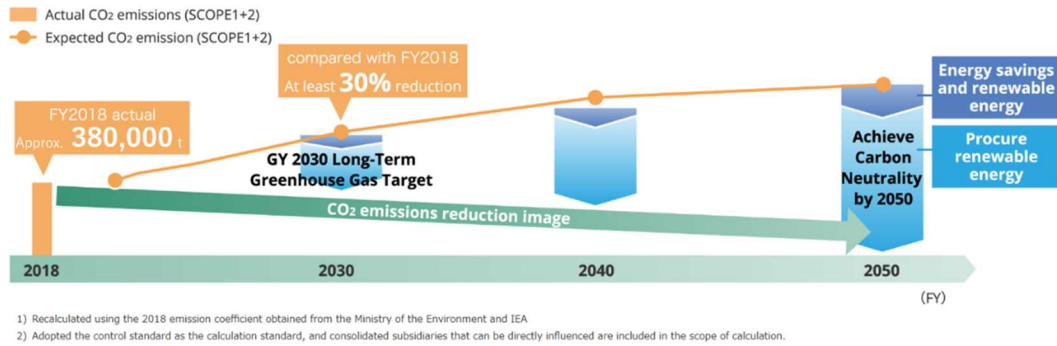


Figure 4: Roadmap to achieving carbon neutrality<sup>8</sup>

### (5) Mid-term Management Plan

GS Yuasa has formulated its Sixth Mid-Term Management Plan for the three-year period from FY 2023 to FY 2025 as a period for building the foundation of the transformation toward realizing "GS Yuasa's vision for 2035". In its Sixth Mid-term Management Plan, GS Yuasa has set out various measures aimed at transforming its business structure in order to achieve sales of 600 billion yen in FY 2025.

Table 1 : Measures for business restructuring

<b>Development of batteries for BEVs</b>	<ul style="list-style-type: none"> <li>Development of high-capacity, high-output lithium-ion batteries through a joint venture with Honda</li> <li>Establishment of a production/supply system for BEV batteries to expand mobility and public infrastructure business</li> </ul>
<b>Reinforcement of earning capacity in existing businesses</b>	<ul style="list-style-type: none"> <li>Comprehensive creation of added value and improvement of profitability</li> <li>Maximize profits through overwhelming advantages in the domestic industrial battery and power supply business</li> <li>Shift in regional strategy, including review of China business, concentrating resources on key bases and maximizing profits</li> </ul>
<b>DX/New business</b>	<ul style="list-style-type: none"> <li>Promoting digital transformation to enable business restructuring</li> <li>Creating new businesses that contribute to solving social issues</li> </ul>

### (6) Materiality

In order to achieve its Sustainability Management Policy, GS Yuasa identified risks and opportunities as well as sustainability issues (materiality) and assessed the impact on its business and society. In addition, taking into consideration of strengthening the business foundation and improving corporate value, the company formulates business plans that address materiality and set targets to measure the progress of the plans. The materiality response plan for FY 2023 target year is FY 2025,

<sup>8</sup> Source: GS Yuasa Sustainability Linked Finance Framework

and was formulated after reviewing the materiality response plan for FY 2022 when implementing the Sixth Mid-Term Management Plan, the first year of which is FY 2023.

GS Yuasa aims to improve the quality of its management in both financial and non-financial aspects and achieve sustainable growth for its business and society, by implementing business processes that incorporate materiality into its long-term vision and medium-term management plans.

GS Yuasa set the goal of "reducing CO<sub>2</sub> emissions by 15% or more in FY 2025 (compared to FY 2018)," as one of its KPIs for visualizing the materiality.

	Materiality	Major Activities and targets (FY2025 Target)
<b>E</b>	<b>Environment – Contribute to sustainability of the global environment as an energy device company</b>	
	<ul style="list-style-type: none"> <li>Developing and popularizing environmentally considered products</li> <li>Promoting environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>Ratio of reduction of CO<sub>2</sub> emissions <b>15%</b> or more (compared with FY2018)</li> <li>Ratio of reduction of water use <b>15%</b> or more (compared with FY2018)</li> <li>Ratio of recycled lead used <b>70%</b> or more</li> <li>Percentage of environmentally considered products in total sales <b>45%</b> or more</li> </ul>
<b>S</b>	<b>Social – Respect for human rights and contribution to society</b>	
	<ul style="list-style-type: none"> <li>Respect for individuality</li> <li>Respect for diversity</li> <li>Human resources development</li> <li>Enhancement of work environments and occupational health and safety</li> <li>Provision of high-quality products</li> <li>Responsible procurement promotion</li> </ul>	<ul style="list-style-type: none"> <li>Promotion of compliance education and thorough management of human rights risks</li> <li>Promotion of diversity &amp; inclusion</li> <li>Promotion of work-life balance and health management</li> <li>Promotion of human resource development programs</li> <li>Promotion of occupational health and safety risk management</li> <li>Strengthening of product safety management, promotion of quality improvement and strengthening of quality communication</li> <li>Responses to responsible mineral procurement and managing CSR risks in the supply chain</li> </ul>
<b>G</b>	<b>Governance – Promotion of fair, transparent, and swift group-wide governance</b>	
	<ul style="list-style-type: none"> <li>Thoroughly fulfilling our CSR and ensuring compliance</li> <li>Protection of intellectual property</li> <li>Thorough management of confidential information</li> </ul>	<ul style="list-style-type: none"> <li>Promotion of compliance education, provision and thorough of legal information</li> <li>Thorough avoidance of infringement and elimination of counterfeit products</li> <li>Promotion of security measures and information security training</li> </ul>

Figure 5: Materiality<sup>9</sup>

## (7) Governance and Sustainability Promotion System

At GS Yuasa Group, the President serves as the Chief Sustainability Officer and oversees the entire group's sustainability efforts. The Board of Directors, which makes important management decisions for the GS Yuasa Group, oversees the appropriateness of sustainability management within the GS Yuasa Group.

In addition, the company has established a Sustainability Promotion Committee at GS Yuasa, a core business subsidiary that serves as the central decision-making body for the GS Yuasa Group's business operations, to discuss, plan and promote sustainability issues in general, thereby promoting sustainability management efforts throughout the GS Yuasa Group.

<sup>9</sup> Source: GS Yuasa website <https://ir.gs-yuasa.com/en/ir/management/plan.html>

The Sustainability Promotion Committee is chaired by an executive officer (Corporate Communications Officer) who is responsible for promoting mid- to long-term efforts to resolve important sustainability issues, and is made up of members who are responsible for major business divisions and group companies. The committee manages the status of responses to risks and opportunities related to sustainability issues that each division and group company should address.

Important matters discussed at the Sustainability Promotion Committee (such as the establishment and revision of sustainability policies and responses to risks and opportunities related to important sustainability issues) are implemented throughout the GS Yuasa Group following a resolution by the Board of Directors. In addition, when sustainability information related to the GS Yuasa Group is released to the public, the information is reviewed and approved by the Board of Directors.



Figure 6: Sustainability Promotion Framework<sup>10</sup>

<sup>10</sup> Source: GS Yuasa "GS Yuasa Report 2023" (fiscal year ending March 2023)  
[https://ir.gs-yuasa.com/en/ir/library/annualreport/main/011/teaserItems1/012/link/GS\\_Yuasa\\_Report\\_2023e.pdf](https://ir.gs-yuasa.com/en/ir/library/annualreport/main/011/teaserItems1/012/link/GS_Yuasa_Report_2023e.pdf)

## II . Selection of KPIs

### (1) JCR's Key Consideration in this Factor

In this section, it will confirm the significance of the KPIs defined in this framework. Specifically, it will check whether the investment is relevant, core and important to the issuer/borrower's overall business, has high strategic significance to the issuer/borrower's current and future business operations, and can be measured or quantified based on a consistent methodology.

### (2) Overview of KPI Selection and JCR's Evaluation

#### ▶▶▶ Evaluation results

The KPIs of this framework meet all of the conditions that must be met as indicated in the SLBP and other standards.

GS Yuasa has set the following KPIs within this framework.

<b>KPI</b>	Reduction of CO <sub>2</sub> emissions volume (total volume, Scope 1, 2)
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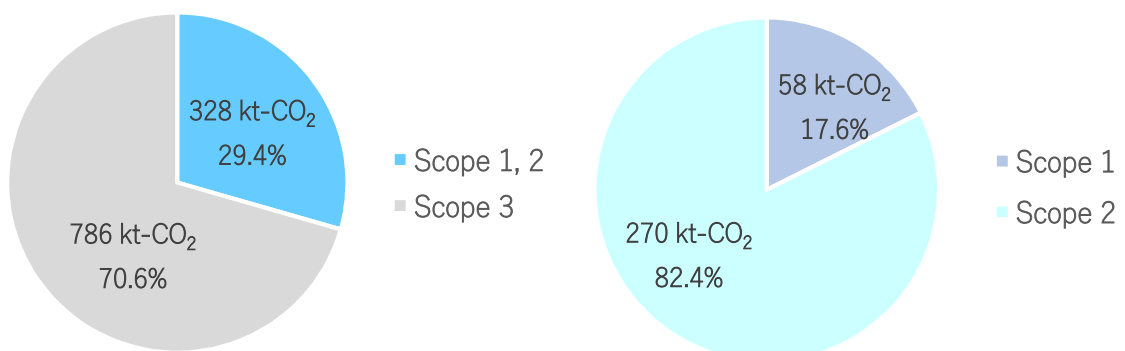
#### <KPI positioning at GS Yuasa>

The scope of this KPI covers the Scope 1 and 2 of entire business segment, including both domestic and overseas business locations.

The GS Yuasa Group's total Scope 1, 2 and 3 CO<sub>2</sub> emissions (FY2023) are 1,114kt-CO<sub>2</sub>, of which Scope 1 and 2 account for 328kt-CO<sub>2</sub>, or 29.4% of the total.

Of the total CO<sub>2</sub> emissions for Scope 1 and 2 (FY2023), which is the KPI, emissions from Scope 1 account for 58kt-CO<sub>2</sub>, or 17.6% of the total, and emissions from Scope 2 account for 270kt-CO<sub>2</sub>, or 82.4% of the total amount of Scope 1 and 2.

Figure 7: GS Yuasa's actual CO<sub>2</sub> emissions for FY 2022 (Scope 1, 2, 3)<sup>11</sup>



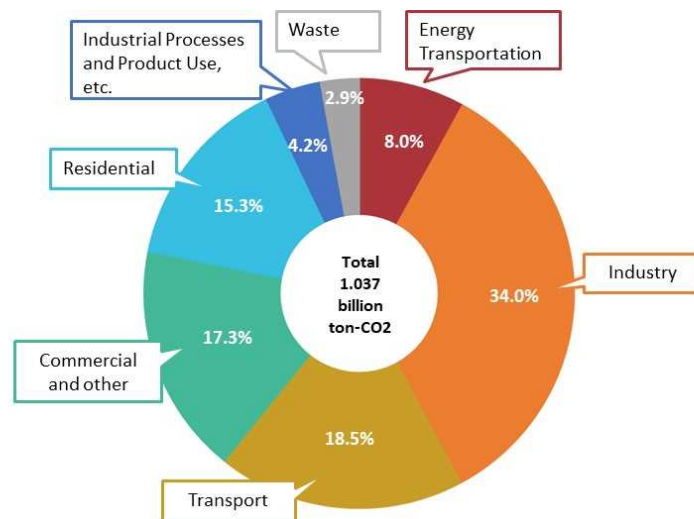
<sup>11</sup> Source: GS Yuasa "GS Yuasa Report 2023" (fiscal year ending March 2023) [https://ir.gs-yuasa.com/en/ir/library/annualreport/main/011/teaserItems1/012/link/GS\\_Yuasa\\_Report\\_2023e.pdf](https://ir.gs-yuasa.com/en/ir/library/annualreport/main/011/teaserItems1/012/link/GS_Yuasa_Report_2023e.pdf)

As mentioned above, GS Yuasa has included "reducing CO<sub>2</sub> emissions" in its business plan to address materiality. The long-term vision and medium-term management plan have been formulated with materiality in mind, and are being promoted as one of the business strategies that address important management issues for the entire group.

For these reasons, GS Yuasa has positioned the KPI "reducing CO<sub>2</sub> emissions" as an important management issue.

**<Positioning of climate change and CO<sub>2</sub> reduction in the manufacturing industry>**

Global CO<sub>2</sub> emissions in 2022 will be 36.93 billion t-CO<sub>2</sub>, of which the industrial sector, including manufacturing, will account for approximately 25% at 9.0 billion t-CO<sub>2</sub><sup>12</sup>. Japan's total CO<sub>2</sub> emissions in FY 2022 will be 1.037 billion t-CO<sub>2</sub>, of which CO<sub>2</sub> emissions from the industrial sector, including manufacturing, account for approximately 34%, or 352 million t-CO<sub>2</sub>. Efforts to reduce CO<sub>2</sub> emissions in the industrial sector, which accounts for just over 30% of Japan's GHG emissions, are important.



**Figure 8: Japan's carbon dioxide emissions in FY 2022 (by emission sector, after electricity and heat allocation)<sup>13</sup>**

In its revised Global Warming Countermeasures Plan<sup>14</sup> for October 2021, the Japanese government announced a goal of achieving carbon neutrality by 2050, with an intermediate goal of reducing GHG emissions by 46% by FY 2030 compared to FY 2013 levels. In addition, the national GHG emissions reduction target (a 46% reduction by FY 2030 compared to FY 2013) sets a CO<sub>2</sub> reduction target for the industrial sector of a 38% reduction by FY 2030 compared to FY 2013, and a reduction of approximately 24% is already underway by FY 2022. In its global warming countermeasures plan, the department is promoting the introduction of facilities and equipment with high energy-saving performance, promoting inter-industry collaboration in energy-saving efforts, and implementing measures such as electrification and fuel conversion.

<sup>12</sup> See "World Energy Outlook 2023" (IEA) (The composition ratios are all based on figures after electricity and heat allocation to the industrial sector.)

<sup>13</sup> Created by JCR based on the Ministry of the Environment's "Japan's National Greenhouse Gas Emissions and Removals in Fiscal Year 2022" <https://www.itv.go.jp/content/000215754.pdf>

<sup>14</sup> Cabinet decision on October 22, 2021 "Global Warming Countermeasure Plan" <https://www.itv.go.jp/content/900440195.pdf>

In conclusion, it can be said that GS Yuasa, a manufacturer, is important in achieving the country's GHG reduction targets in its efforts to reduce CO<sub>2</sub> emissions.

### <Industry initiatives>

GS Yuasa is a full member of the Battery Association of Japan<sup>15</sup>, an industry group related to batteries and battery accessories. The Battery Association of Japan has established an Environmental Charter, recognizes the relationship between business and the environment, and is working to realize a rich society on a global scale in which all human beings can fully demonstrate their humanity through activities, products, and services that are in harmony with the environment. In addition, the Battery Association of Japan has formulated an Environmental Action Plan as a concrete plan for its actions related to the environment in general. The plan lists "energy conservation and reduction of CO<sub>2</sub> emissions" as an item, and indicates as a guideline a "reduction of at least 1% in basic units compared to the previous year." On the other hand, GS Yuasa's goal is to reduce GHG emissions in line with the Paris Agreement, so it manages CO<sub>2</sub> emissions by total amount rather than per unit, and it is clear that the company is going beyond the guidelines of the Battery Association of Japan.

For these reasons, the industry to which GS Yuasa belongs also places importance on reducing CO<sub>2</sub> emissions, and efforts are being made to reduce CO<sub>2</sub> emissions during manufacturing.

This KPI contributes to reducing CO<sub>2</sub> emissions over the life cycle of storage batteries and is in line with the policy of the industry association, the Battery Association of Japan. This is also meaningful as it is positioned as an important management issue for GS Yuasa.

### <Whether it can be measured or quantified based on a consistent methodology (external verifiability)>

This KPI, "Reduction of CO<sub>2</sub> emissions (total volume, Scope 1 and 2)," is defined by the GHG Protocol, an international standard established for calculating and reporting GHG emissions. The GHG Protocol is being developed through an open process with the aim of promoting its international use, and the standards and guidance that result from its consideration are published on the organization's website.

As a result, this KPI is quantified based on a consistent methodology and can be verified externally.

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<sup>15</sup> The purpose of the Institute is to promote the healthy development of the battery and battery-appliance industry and related industries by conducting research and studies on batteries and battery-appliances, and by promoting policies related to environmental conservation, recycling, standardization, quality performance, and product safety, thereby contributing to the promotion of industry, ensuring safety in the lives of the people, and improving the quality of life.

### III. Measurement of SPT

#### (1) JCR's Key Consideration in this Factor

This section examines the ambition of the Framework's SPT. Specifically, the SPT is checked from the perspective of whether it represents a significant improvement in selected KPIs and is ambitious, such as exceeding the business as usual (BAU) trajectory (what would happen if the project were not implemented or as planned); where possible, it is comparable to benchmarks or external reference values; it is aligned with the issuer/borrower's overall sustainability and business strategies; and the SPT is determined based on a predetermined time frame (e.g., target year) by the start of financing.

#### (2) Overview of SPT measurements and JCR evaluation

##### ▶▶▶ Evaluation results

The SPT of this framework meets all of the conditions that must be met as specified in the SLBP and other standards.

GS Yuasa has set the following SPTs within this framework.

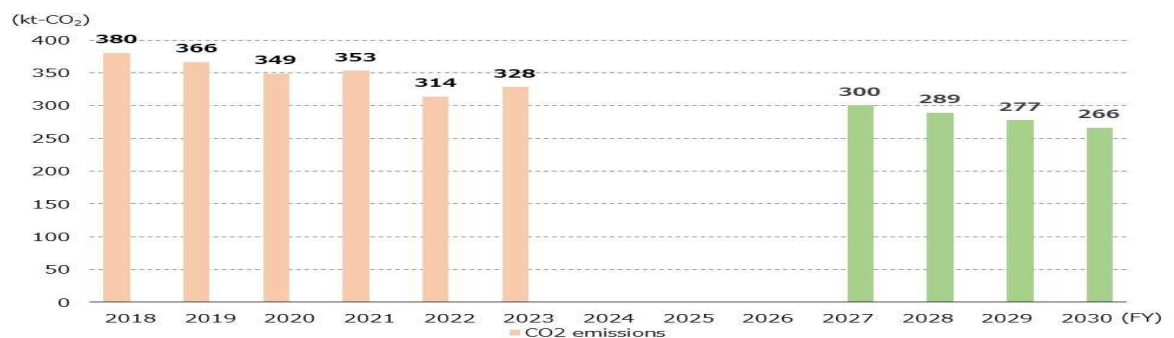
SPT	Annual targets toward 30% or higher reduction in CO <sub>2</sub> emissions volume by FY 2030 (compared to FY 2018) [Annual CO <sub>2</sub> emission reduction targets]				
	Fiscal year	2027	2028	2029	2030
	Reduction rate (compared to FY 2018)	21%	24%	27%	30%

#### I Comparison with past fiscal year results (Is it ambitious beyond BAU?)

The past performance of this KPI is shown in Table 2 and Figure 9 below.

**Table 2 : Table of GS Yuasa KPI (Scope 1, 2 CO<sub>2</sub> emissions) performance in previous year (and SPT)**

	unit	stand ard	Achievements							SPT				
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CO <sub>2</sub> Emissions	kt-CO <sub>2</sub>	380	366	349	353	314	328				300	289	277	266
CO <sub>2</sub> reduction rate	%	-	3.6	8.2	7.2	17.4	13.7				21	24	27	30



**Figure 9: Graph of GS Yuasa KPI (Scope 1, 2 CO<sub>2</sub> emissions) performance in previous years (and SPT)<sup>16</sup>**

<sup>16</sup> Created by JCR from materials provided by GS Yuasa

GS Yuasa's CO<sub>2</sub> emissions (Scope 1, 2) varied; from the base year of FY 2018, decreasing through FY 2020, increasing in FY 2021, decreasing in FY 2022, and then increasing in FY 2023. The main factors include fluctuations in production volume due to demand, as follows:

- FY2020: Due to the impact of COVID-19, production activities contracted and emissions decreased.
- FY2021: Emissions increased due to the recovery of production activities from the impact of COVID-19.
- FY2022: Although production volume increased, emissions decreased due to the effect of switching all electricity at the company's main factory, the Kyoto Office, to 100% essentially renewable energy using non-fossil fuel certificates in November 2021.
- FY2023: Emissions increased due to the recovery of production at new car manufacturers as a result of the elimination of the semiconductor shortage, the strengthening of production systems at group companies (automotive lithium-ion batteries), and increased production of lithium-ion batteries for power storage.

GS Yuasa, a manufacturer, has sales revenue, which is correlated with production volume, and is aiming for 600 billion yen in FY 2025 in its medium-term management plan and 800 billion yen in FY 2035 in its long-term vision, based on its actual sales of 562.9 billion yen in FY 2023.

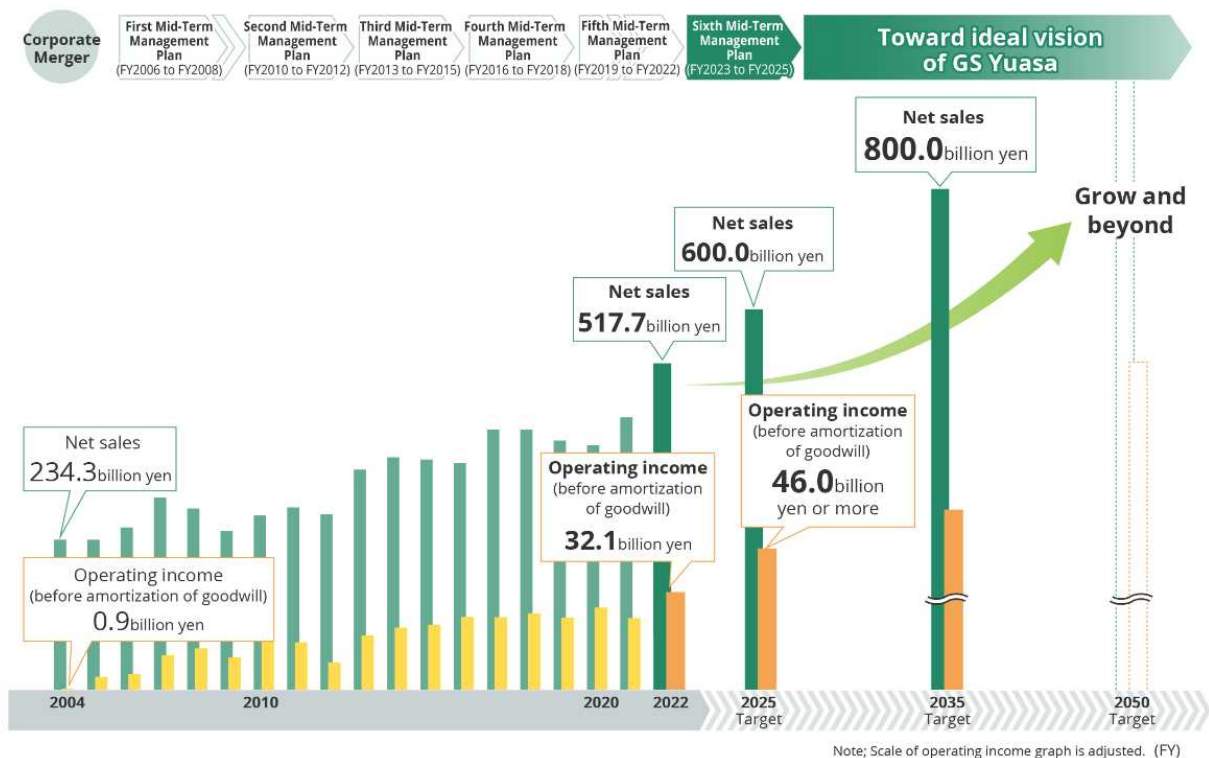


Figure 10: Image of growth toward achieving Vision 2035<sup>17</sup>

<sup>17</sup> Source: GS Yuasa website <https://ir.gs-yuasa.com/en/ir/management/plan.html>



The government has also positioned storage batteries as a key to achieving carbon neutrality by 2050, and has formulated a "Storage Battery Industry Strategy," as well as outlining the GX direction and investment promotion measures for storage batteries over the next 10 years as a key area of the "Sector-specific Investment Strategy" aimed at achieving GX. In the near future, the market for storage batteries is expected to expand rapidly in line with the expansion of the EV market, with the market for automotive storage batteries expected to grow rapidly.

GS Yuasa is working with automakers to invest in the development and mass production of batteries for use in EVs and renewable energy, and plans to build a new factory. The new factory is the target of the Ministry of Economy, Trade and Industry's battery manufacturing supply chain strengthening support project, and is an important project in advancing GX. Storage batteries are essential for Japan to advance its GX strategy, and production volume is expected to increase in the future as demand grows. Because the production of storage batteries requires a large amount of electricity, Scope 2 CO<sub>2</sub> emissions, which include electricity consumption, are expected to increase significantly in the future if the company expands production as planned.

GS Yuasa has been actively taking measures to reduce CO<sub>2</sub> emissions, including signing a contract to switch to 100% renewable electricity at its main factory in Kyoto, but the increase in production has exceeded the measures, resulting in an increase in emissions in FY 2023. As mentioned above, with production volume expected to continue to increase in the future, JCR considers this to be an ambitious target, as it is believed that efforts to reduce CO<sub>2</sub> emissions toward the target will require greater acceleration than ever before.

## ii Comparison with benchmarks (scientific evidence, external reference values, etc.)

### <Comparison with scientific evidence>

The goal of reducing CO<sub>2</sub> emissions by 30% over the 12-year period from FY 2018 to FY 2030 is a 2.5% annual reduction, which meets the WB 2°C standard for SBT certification.

### <Comparison with other companies in the industry>

Although it is difficult to make a strict comparison of the SPT level with other companies in the same industry in terms of business type, company size, etc., there are companies that have set more ambitious targets. Due to the nature of storage batteries as a product, the amount of electricity used is directly proportional to the amount of production. Therefore, it is likely to be difficult to set ambitious targets when expanding production volume in response to future increases in global demand. However, it is expected that the setting of relatively more ambitious targets will be considered in the future.

### <Comparison with national and regional targets, etc.>

The national GHG reduction target (a 46% reduction by FY 2030 compared to FY 2013) sets a CO<sub>2</sub> reduction target for the industrial sector at 38%<sup>18</sup> reduction by FY 2030 compared to FY 2013. If the base year for this target is replaced with the base year for the targets set by GS Yuasa, which is 2018, the figure becomes approximately 28%. Therefore, if the target values of the national industrial sector are used as a benchmark, GS Yuasa's targets can be said to be more ambitious than those benchmarks.

### iii Plans and efforts to achieve SPT

GS Yuasa plans to implement the following measures to achieve the SPT.

<b>Promoting energy conservation measures</b>	<ul style="list-style-type: none"> <li>· Introduction of energy-saving equipment</li> <li>· Development of efficient charging methods and new developments</li> </ul>
<b>Promoting renewable energy generation</b>	<ul style="list-style-type: none"> <li>· Maximize adoption of renewable electricity at all business locations, both domestic and overseas</li> <li>· Implementation of in-house products and demonstration experiments of advanced renewable related products</li> </ul>
<b>Renewable Energy Procurement</b>	<ul style="list-style-type: none"> <li>· Purchase electricity from renewable energy sources</li> <li>· Procurement of renewable energy certificates</li> </ul>

Furthermore, when it comes to introducing energy-saving equipment and solar power generation facilities, the government plans to accelerate investment plans through internal carbon pricing<sup>19</sup>.

Based on the above, JCR confirms the ambition of the Framework's SPT.

<sup>18</sup> Global Warming Countermeasures Plan (P19 Table 1) <https://wwitnv.go.jp/content/900440195.pdf>

<sup>19</sup> By converting the CO<sub>2</sub> emissions associated with the introduction of equipment into costs and adding them to investment decisions, it can promote low-carbon investments such as the introduction of energy-saving equipment and renewable energy sources while assessing the effect of CO<sub>2</sub> reduction.

### (3) Impact evaluation by JCR

JCR confirmed the increase in positive impacts and the degree of avoidance, management and reduction of negative impacts related to SPT in this framework in accordance with the five perspectives of the impact assessment criteria exemplified in the fourth principle of the Positive Impact Finance Principles formulated by the United Nations Environment Program Finance Initiative (UNEP FI).

#### ① Diversity: Will variety of positive impacts be delivered?

The impact of the SPT of this framework is limited to "climate stability" among the impact areas/topics defined by UNEP FI as follows:

Social	Integrity & security of person	Conflict	Modern Slavery	Child labor	
	Health & safety	Data privacy	Natural disasters		
	Availability, accessibility, affordability, quality of resources & services	Water	Food	Energy	Housing
		Healthcare & sanitation	Education	Mobility	Information
		Connectivity	Culture & heritage	Finance	
	Livelihood	Employment	Wages	Social protection	
	Equality & justice	Gender equality	Ethnic / racial equality	Age discrimination	Other vulnerable groups
	Socio-economic	Strong institutions, peace & stability	Rule of law		Civil liberties
Healthy economies		Sector diversity		Flourishing MSMEs	
Infrastructure					
Convergence					
Natural environment	Climate stability				
	Biodiversity & ecosystems	Waterbodies	Air	Soil	
		Species	Habitat		
Circularity	Resource Intensity		Waste		

In addition, the SPT of this framework applies to all business segments and all business locations, including overseas, and is expected to have an impact on the "manufacturing" stage of GS Yuasa's supply chain.



Automotive Batteries (Japan)		○			
Automotive Batteries (overseas)		○			
Industrial Batteries and Power Supplies		○			
Automotive Lithium-ion Batteries		○			
Special Batteries and Others		○			

### ② Effectiveness: Will magnitude impacts be delivered?

This finance is expected to have a ripple effect on the storage battery market from the following perspectives:

GS Yuasa's sales from all business activities in FY 2023 are expected to be 562.9 billion yen, and the SPT covers all business activities and the entire world, including Asia, Europe, the United States, and Australia, so the impact is expected to be significant. The company also has the second largest market share in the world in the automotive lead-acid battery business, the leader in Japan and the ASEAN region, and the leader in motorcycle batteries in the world. Furthermore, the company is a target business operator of the Ministry of Economy, Trade and Industry's battery manufacturing supply chain strengthening support project, and is playing an important role in realizing Japan's GX. Therefore, GS Yuasa's efforts to address climate change are expected to have a major impact on the battery storage industry.

### ③ Efficiency: Will large scale of impacts relative to amount of funds spent be delivered?

In implementing its sustainability management policy, GS Yuasa identifies risks and opportunities, evaluates the impact on its business and society, and clarifies sustainability issues (materiality). In addition, GS Yuasa formulates business plans that address materiality and sets targets to measure the progress of the plans, taking into consideration of strengthening the business foundation and improving corporate value. GS Yuasa aims to improve the quality of its management in both financial and non-financial terms and achieve sustainable growth for its business and society by implementing business processes that incorporate materiality into its long-term vision and medium-term management plans.

The SPT of this framework is related to materiality, and progress on materiality is managed by the Sustainability Promotion Committee of the core business subsidiary and reported to the Board of Directors.

Therefore, it is expected that an efficient impact will be realized in relation to the invested capital with efforts regarding this SPT achievements.

④ **Multiplication: Will private funds be used to a greater extent than public funds and/or donations?**

GS Yuasa has a track record of utilizing subsidies from government agencies and other sources in promoting energy and CO<sub>2</sub> reduction, and plans to continue to do so in the future if the opportunity arises.

It is expected that backing from public funds will continue to be provided in the future, which will lead to further financing through this framework and further CO<sub>2</sub> reductions in the entire storage battery industry.

⑤ **Additionality: Will additional impacts be delivered?**

The SPT of this framework is expected to have additional impacts on multiple goals and targets out of the 17 goals and 169 targets of the SDGs, as listed below.



**Goal 7: Affordable and clean energy**

Target 7.2. By 2030, increase substantially the share of renewable energy in the global energy mix  
Target 7.3. By 2030, to double the global rate of improvement in energy efficiency



**Goal 9: Industry, Innovation and Infrastructure**

Target 9.4. By 2030, to 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



**Goal 13: Climate Action**

Target 13.1. To strengthen resilience and adaptive capacity to climate-related disasters and natural disasters in all countries.

## IV. Characteristics of bonds/loans

### (1) JCR's Key Consideration in this Factor

JCR will confirm, as for the characteristics of bonds/loans specified in this framework, whether the interest rate of bonds/loans based on this Framework will change depending upon whether the pre-established SPT is achieved or not in this sector.

### (2) Overview of Characteristics of bonds/loans and Evaluation by JCR

#### ▶▶▶ Evaluation results

The characteristics of bonds/loans defined in this Framework satisfy all of the conditions set out in the SLBP and so on.

The financial and structural features of the bonds and loans defined in this framework may include interest rate step-up or step-down, donations to organizations with environmental conservation or other objectives, and carbon offset trading, and will be specifically identified in statutory disclosure documents or loan agreements at the time of each financing.

In addition, if a situation arises that could not be foreseen at the time of formulating this Framework and that could have a significant impact on this Framework, and it becomes necessary to change the definitions and scope of KPIs, the settings of SPTs, assumptions, etc., the SPT will be reviewed in consultation with a third party organization.

Based on the above, JCR has confirmed that the characteristics of the bonds and loans set out in this Framework meet all of the conditions to be met, as outlined in each principle, etc.

## V. Reporting/Verification

### (1) JCR's Key Consideration in this Factor

In this section, regarding the reporting specified in this framework, JCR confirms whether the latest information on the performance of the selected KPIs and information that can judge the ambition of SPTs are disclosed at least once a year. In addition, regarding the verification specified in this framework, JCR confirms whether independent external verification of the selected KPI results will be carried out and whether the verification contents will be disclosed.

### (2) Overview of Reporting/Verification and Evaluation by JCR

#### ▶▶▶ Evaluation results

The reporting and verification specified in this Framework meet all the conditions to be met shown in the SLBP and so on.

During the period until the bonds (or loans) implemented based on this framework are redeemed (or repaid), GS Yuasa will disclose annually on its website or in public documents (integrated report) the progress of achievement of the set KPIs against the SPTs.

GS Yuasa has received third-party verification of its performance against this KPI every year, including the base year of 2018, and plans to undergo third-party verification every year going forward.

Based on the above, JCR confirmed that the reporting set out in this framework meets all of the conditions to be met, including the principles, etc.

## VI. Conclusion on Alignment with SLBP and so on

Accordingly, JCR has confirmed that this Framework is aligned with SLBP and so on.

(Responsible Analyst) Atsuko Kajiwara and Takuto Touda



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## Important Explanation on this Second Party Opinion

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### 1. Assumptions, Significance and Limitation of Second Party Opinion Assigned and Provided by JCR

The second party opinion assigned and provided by Japan Credit Rating Agency (JCR) is a comprehensive statement of the JCR's current opinion on alignment of the target evaluation with the Sustainability-Linked Bond Principles formulated by the International Capital Market Association (ICMA,) Sustainability-Linked Loan Principles formulated by Asia Pacific Loan Market Association (APLMA,) Loan Market Association (LMA) and Loan Syndications and Trading Association (LSTA,) and the Sustainability-Linked Bond Guidelines and Sustainability-Linked Loan Guidelines developed by the Ministry of the Environment.

This second party opinion evaluates the plans or circumstance at present, based on information provided by the client and independently collected by JCR and does not guarantee the evaluation on circumstances in the future. This second party opinion does not quantitatively demonstrate positive effects through the Sustainability Linked Loan (SLL) / Sustainability Linked Bond (SLB,) which is based on the Framework, and JCR assumes no responsibility for its effects. JCR confirms that the achievement of the sustainability performance target is quantitatively/qualitatively measured by the borrower/issuer or a third party requested by the borrower/issuer; however, JCR, in principle, does not directly measure it.

### 2. International Initiatives or Principles Referred in Providing this Second Party Opinion

JCR refers to the following Principles and Guidelines developed by ICMA, APLMA, LMA, LSTA, the Ministry of the Environment and the United Nations Environment Program Finance Initiative in providing this evaluation.

- Sustainability-Linked Bond Principles
- Sustainability-Linked Loan Principles
- Sustainability-Linked Bond Guidelines
- Sustainability-Linked Loan Guidelines
- Positive Impact Finance Principles

### 3. Relation with Conduct on Credit Rating Business

This second party opinion is provided by JCR as its related business and differs from any conduct of credit rating business.

### 4. Relation with Credit Rating

This evaluation differs from credit rating and is not committed to providing a predetermined credit rating or making available for inspection.

### 5. Impartiality of JCR

There is neither capital nor personal relations that cause conflicts of interest between this evaluation target and JCR.

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#### ■ Matters of Attention

The information stated in this document was obtained by JCR from the borrower/issuer and accurate and reliable sources. However, there may be errors due to artificial, mechanical or other reasons in the said information. Accordingly, JCR neither expresses nor guarantees, regardless of whether or not explicit or implicit, the accuracy, results, rightness, timeliness, completeness, marketability or alignment for any particular purpose of such information, and JCR shall not be liable for any errors or omissions of the information concerned or consequences of such information. Under no circumstances shall JCR be liable for any special, indirect, incidental or consequential damage of any kind, including opportunity loss or monetary loss, arising from any use of such information, regardless of contractual liability, tort liability, unlawful liability or other liability, or whether or not such damage is foreseeable or unforeseeable. This second party opinion does not express any opinion on various risks (credit risks, price volatility risks or market liquidity risks) on the SLL/SLB based on the Framework that is subject to evaluation. This second party opinion is an overall opinion of JCR at this time and is not a representation of facts and does not constitute a recommendation of any kind regarding risk assessments or decisions to purchase, sell or hold individual bonds, commercial papers or other instruments. This second party opinion may be changed, suspended or withdrawn due to changes in information, a lack of information or other reasons. All rights to this document are reserved by JCR. It is prohibited to duplicate, translate or alter this second party opinion, whether in whole or in part, without permission from JCR.

#### ■ Glossary

Second Party Opinion: This report expresses the second party opinion for the alignment with the Sustainability-Linked Bond Principles formulated by ICMA, Sustainability-Linked Loan Principles formulated by APLMA, LMA and LSTA from an independent, neutral and impartial standpoint.

#### ■ Status of Registration as an External Evaluator of Sustainable Finance

- United Nations Environment Programme, Financial Initiative, Positive Impact Working Group Members
- Registered as an external reviewer of Green Bonds by Ministry of the Environment
- Climate Bonds Initiative Approved Verifier
- ICMA (registered as an observer to the International Capital Markets Association,) Social Bond Principles, Climate Transition Finance Working Group Members

#### ■ Status of registration as a credit rating agency

- Credit Rating Agency: the Commissioner of the Financial Services Agency (Rating) No.1
- EU Certified Credit Rating Agency
- NRSRO: JCR has registered with the following four of the five credit rating classes of the U.S. Securities and Exchange Commission's Nationally Recognized Statistical Rating Organization (NRSRO): (1) financial institutions, broker-dealers, (2) insurance companies, (3) general business corporations and (4) governments and municipalities. If the disclosure is subject to Section 17g-7 (a) of the Securities and Exchange Commission Rule, such disclosures are attached to the news releases appearing on the JCR website (<https://www.jcr.co.jp/en/>).

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