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GS Yuasa Corporation
Six Months Ended September 30, 2022(FY2022) Result Briefing
Q&A Session Summary

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<Overview>

◇Date : November 10, 2022 15:00 to 16:00

◇Contents : FY2022 2nd Quarter Financial Results

Environment and Strategies Surrounding Storage Batteries

Creating Synergistic Effect with GS Yuasa Energy Co., Ltd.

◇Explainer : President: Osamu Murao

Director and CFO : Hiroaki Matsushima

* EVs : Electric Vehicles; PHEVs: Plug-in Hybrid Electric Vehicles; HEVs: Hybrid Electric Vehicles;
BEVs : Battery Electric Vehicles

【Q1】

You mentioned how the company is enhancing R&D regarding batteries for EVs, so could you give us an update on this front?

Recently, I believe you mentioned to a newspaper reporter that GS Yuasa is planning to enter this market in 2023. Could you please confirm this timeline and give us more details?

【A1】

Starting in fiscal year 2022, we established a “Battery for BEV Development Department” within the scope of the Lithium-ion Battery Business Unit. Starting in the past, we have developed, produced, and supplied batteries for EVs, so we already have a platform in place. This new BEV development department involves the development of high energy-density, high-quality batteries for EVs, so we have put together a team consisting of approximately 30 members who previously worked on batteries for hybrid vehicles and plug-in hybrid vehicles in the LIB Technical Center. As such, starting this fiscal year, we will register expenses associated with this project, within the scope of

the Lithium-ion Battery Business Unit.

You mentioned a 2023 timeline, but actually, we currently supply batteries for EVs already. I am not at liberty to discuss the details here, but we have already started discussions with a number of OEMs, and I can say that for the Sixth Mid-Term Management Plan starting in 2023, we will be shifting resources from batteries for hybrid vehicles, which we had dedicated our efforts to in the past, to batteries for EVs and also to ESS, which stands for Energy Storage Systems.

As such, 2023 refers to the beginning of the Sixth Mid-Term Management Plan, during which we will be shifting resources considerably toward batteries for EVs.

【Q2】

The company was caught up in the region's logistics turmoil, leading to unrealized gains in the first quarter. Last time, I believe you mentioned the need to reduce production in the second quarter to account for this, so I would appreciate it if you could provide us with an update and discuss the outlook for the second half of the fiscal year.

Does this mean that the factors you just mentioned had somewhat of a negative impact on second quarter results and that you expect similar effects to still manifest themselves somewhat in the second half of the fiscal year?

【A2】

Noteworthy here is the fact that our site in Turkey entered the scope of consolidation, and additionally, we also manufacture industrial batteries in the United Kingdom. Regarding batteries for use in 4-wheel and 2-wheel vehicles, these are manufactured in Asia, and are then imported and then sold in the UK and continental Europe. As such, local currency weakness has had some impact on our results. Furthermore, you mentioned the company's unrealized gains. A relatively warm winter and a logistics disruption translated into an increase in inventories all at once. However, as we approach demand season, inventory levels are gradually decreasing.

As it pertains to our subsidiary in the UK and subsidiaries in continental Europe, we are executing a variety of measures in order to reduce inventory levels. As we approach the demand season, these unrealized inventories are gradually going down. We therefore believe the situation is expected to gradually improve over time.

【Q3】

Could you provide us with an update of the company's turnaround in China? Judging from the slide you showed earlier, it would appear that net sales were yet to stage a

significant recovery in the first half. I believe lockdowns had an impact on results, so could you please give us a brief update of where things stand currently and also discuss the outlook going forward? You mentioned initiatives such as dispatching staff from Japan to China in order to enact productivity improvement and enhancing e-commerce. Would it be safe to assume the company has steadily been executing these?

【A3】

We have production bases in Northern and Southern China for the manufacturing of batteries for new automobiles. While we have been able to secure some performance results, China's zero-COVID policy has led to a very difficult situation in the replacement market.

【Q4】

While automotive production is on a recovery trend, the pace has been rather slow, making for a challenging environment. Looking at the factors for operating income change, quantity and composition change had a significantly negative impact of 6 billion yen, compared to the initial forecast. Conversely, other items delivered a significant recovery, exceeding the forecast. This differential is significant, so I would like to ask about the backdrop as it pertains to the waterfall chart on the right-hand side, for example, areas which the company temporarily carried out efforts in and which consequently won't make a contribution in the second half of the fiscal year. While there have been minor net sales revisions, the profit forecast for the full fiscal year remains unchanged. Are there any noteworthy changes in these factors for operating income change? Could you therefore give us a little bit more detail on this front?

In terms of pacing, I believe there's some variance in terms of sales quantity, which I expect will improve over time, but would it be accurate to think the effects of the various cost reductions carried out by the company will continue to be in play in the second half as well? I would therefore like to hear your thoughts on the second half.

【A4】

Changes in quantity and composition had a very significant impact on results, of which a decrease in quantity overseas accounted for approximately 60%. The impact on our recent performance overseas of the ongoing semiconductor shortage was greater than expected. Another potential factor impacting our results in Europe is the ongoing

conflict in Ukraine, and these factors translated into a significant decrease in quantity, compared to the initial forecast. A further factor was a decrease versus the forecast, in terms of sales quantity of batteries for new automobiles in the domestic market, resulting from semiconductor shortages. This item remained mostly unchanged on a year-on-year basis, but from the perspective of the initial forecast, results fell short. Additionally, in the Industrial Battery and Power Supply segment, we are seeing a slowdown in demand from public agencies and the private sector, as companies seem to be slightly cutting back on capex. We therefore saw a decrease in sales quantity for backup batteries and power supplies, in contrast to what we had estimated in the initial forecast. Furthermore, another factor had to do with the Automotive Lithium-ion Battery segment, sales for which consist primarily of batteries for new automobiles. Sales quantity decreased for batteries for new automobiles, so this was also a relevant change factor. On the other hand, in light of surging raw material prices, we executed cost pass-throughs in each segment, and were also able to reduce expenses. Additionally, foreign exchange had a positive effect, which was a helpful contribution, allowing us to slightly exceed the initial forecast.

The price of raw materials on the LME has been very stable, recently. As such, we believe we will be able to maintain existing cost pass-throughs, making a profit contribution. Regarding expenses, we were able to rationalize variable expenses, which are proportional to sales quantity, so should the current shortage of semiconductors continue, then we can expect a similar reduction in expenses to occur once again.

【Q5】

Like under the IRA in the United States, more and more, we are seeing requirements for local production. Naturally, producing high-quality batteries is a prerequisite, but I would like to hear GS Yuasa's philosophy as it pertains to local production. I believe these types of initiatives require extensive amounts of capex and other forms of investment, so I would like to hear your thoughts on this, for example, whether the company would consider joint ventures in these areas. Additionally, even if we only consider local production in Japan, there are significant incentives for this, as well. Unlike with hybrid vehicles, I believe the hurdle is high for EVs when it comes to exports, so I would like to hear your thoughts on these topics.

【A5】

For GS Yuasa, for the period between 2023 and 2025, sales and operating income will still be mostly centered around batteries for hybrid vehicles, plug-in hybrid vehicles,

and ESS. In particular, already during the Fifth Mid-Term Management Plan we increased production capacity at Blue Energy, which stands at close to 50 million cells per year. Based on the current level of inquiries we have received, we expect to be able to reach an annual production capacity of 70 million cells, between around the years of the late 2020s.

We currently supply Honda Motor Co.,Ltd. and Toyota Motor Corporation with battery modules for hybrid vehicles, but we have also already started conversations with a number of other OEMs. Next, regarding our approach toward lithium-ion batteries for battery EVs, from the start of fiscal year 2022, we have gathered personnel and resources allowing us to go beyond existing development of batteries for EVs carried out by GS Yuasa. We have therefore started development of batteries for EVs, delivering higher performance levels.

However, although we currently supply batteries for EVs already, these efforts will only translate into actual market commercialization around 2025 and beyond. Regarding the topic of production primarily in the United States, I am afraid I am not at liberty to discuss the specifics, but we have already started a number of discussions and preparations. What I can say is that capex associated with the creation of infrastructure for the manufacturing of batteries for battery EVs is indeed a challenge. In light of this, rather than GS Yuasa taking a majority stake, we would like to provide primarily our technological expertise, for example, in the field of mass production, to OEMs with whom we would like to work together.

【Q6】

Lastly, as you mentioned earlier, I also believe stationary storage batteries to have a very large potential. With that being said, I also feel that the spark to set off this growth has not yet been lit. On page 21, you mention the development of third-generation storage batteries, but I would like to know if this will be the catalyst to spark growth. Hokkaido has plenty of usable land, and GS Yuasa has a very good reputation when it comes to safety, so I wonder if there really is a need to develop new high-density batteries, so I would like to ask you about any major potential catalysts in the renewable energy market to propel this domain to the status of business pillar for the company.

This transition has benefits for GS Yuasa in that it saves time and effort, but have there been any significant changes in client inquiries following the shift to LEPS-2?

【A6】

The bottom section discusses the first generation of stationary storage industrial lithium-ion batteries, with the product name of LEPS-1. As we showed on page 20, we already have a large track record of supplying facilities using storage batteries to reduce output fluctuations. I mentioned we were in the development phase, but development has already been completed for the LEPS-2 second generation of stationary storage industrial batteries, the technical specifications for which are shown here. Market launch for LEPS-2 will take place in the second half of the fiscal year, with the projects and companies we will be supplying already having been decided upon. Worthy of note here is that LEPS-2 improves upon the first generation model, boasting a longer life and increased capacity. We were able to significantly improve the capacity maintenance rate. What is positive about this is that ESS are usually required to have a lifespan of between 15 and 20 years, and previously, these systems would gradually lose maximum capacity over time, requiring new units to be added from time to time. Having an improved capacity maintenance rate has the benefit of allowing for some reduction in initial deployment. Even as the battery undergoes charging cycles, the rate of battery capacity degradation is slower than in other batteries. Furthermore, LEPS-2 also boasts an increased capacity of approximately 15% when measured against comparable models.

Whether the batteries are attached to the power generation side, directly connected to the grid, or attached to the demand side, the domain of ESS involves accumulating energy, which is then normalized before being supplied. Given the current energy situation, we believe that this domain will show very significant growth going forward. We would like to go beyond LEPS-2, development for which was completed this fiscal year, as we would like to continue developing industrial-use storage batteries with improved capabilities, such as LEPS-3 and beyond.

We will start the supply of LEPS-2 batteries in the second half of the current fiscal year, but we have also received a large number of business inquiries for this product, for the period corresponding to the Sixth Mid-Term Management Plan, which starts in 2023. In light of this, currently, we are evaluating optimal ways to carry out the manufacturing of these batteries. Additionally, currently, storage batteries and power supplies, including power conditioners, each use separate board foundations, and these two are installed separately. Going forward, naturally, we will continue battery development, but we would also like to work on system development, toward integrating batteries and power conditioners into a single board foundation, and through this, simplify the installation process. Through these efforts, we will be making batteries more compact

and easier to install, and we believe this will lead to an increase in business inquiries.

【Q7】

Between fiscal years 2016 and 2021, GS Yuasa Energy delivered an accumulated operating income of approximately 20 billion yen. This appears to indicate an average operating income margin of around 10%. Additionally, I believe the average operating income margin for the Automotive Battery segment in Japan to be in the high single digits, so this appears to indicate an advantage for GS Yuasa Energy. Could you elaborate on what the difference between the two is? Additionally, do you expect this strong margin on the part of GS Yuasa Energy to continue?

【A7】

As you mentioned, GS Yuasa Energy has maintained an operating income margin of approximately 10%, while the margin for GS Yuasa itself is in the high single digits. The first difference between the two is the ratio of shipped batteries, for batteries for new automobiles and replacement batteries. Replacement batteries have a higher weighting for GS Yuasa Energy, leading to higher profit margins. Another difference is that GS Yuasa offers a very wide range of variations, from small batteries all the way to batteries for use in buses and trucks. GS Yuasa Energy, on the other hand, features less variation and focuses on batteries offering higher mass production efficiency, so we believe this is another point of difference. Going forward, as I mentioned earlier, GS Yuasa will be supplying large batteries to GS Yuasa Energy, and conversely, GS Yuasa Energy will be supplying small batteries and VRLA batteries to GS Yuasa. As such, we expect current operating income margin levels to be maintained.

【Q8】

Page 20, on the left-hand side, covers the connection of storage batteries to the grid, and divides these into three domains. In which of these categories does GS Yuasa have the strongest advantage? Additionally, on page 21, you mentioned the integration of storage batteries and power supplies. I would like to know if other industry players already offer such integrated solutions, or whether GS Yuasa is the first company to do this.

【A8】

While we don't necessarily have a particular competitive advantage in this domain, as it pertains to the connection of storage batteries to the grid - be it through attachment

to the power generation side, a direct connection to the grid, or attachment to the demand side - we do have a track record of supplying batteries. In fact, we have significant results in the supply of batteries in the context of attachment to the power generation side, and direct connections to the grid. As it pertains to attachment to the demand side, while we do have a track record when it comes to installations in factories and buildings, we haven't made much in the way of inroads when it comes to households. We expect demand to continue growing significantly in these three domains, so, going forward, we would like to expand our operations in these domains. There are companies already offering all-in-one solutions, but many companies still offer solutions with separate board foundations for storage batteries and power supplies. Up until now, GS Yuasa too had offered these separately, but in order to improve efficiency, we are currently in the process of developing an all-in-one solution and would like to offer these, going forward.

【Q9】

What is GS Yuasa's production capacity in terms of GWh? Additionally, at what pace do you expect GWh production capacity to grow toward the years 2030 and 2050? Do you expect it to follow the trend shown in the vertical bar graph? What scale can we expect in terms of capex in order to increase GWh capacity?

Lastly, within the scope of increasing production capacity, what is your approach to Lithium Energy Japan in terms of the Six Mid-Term Management Plan?

【A9】

First, GS Yuasa's current production capacity stands at approximately 3 GWh. We are in the process of expanding capacity by approximately 1 GWh, with associated costs between the high single-digit billion yen figures and 10 billion yen. While we expect these costs to go down in the future, currently, the cost per GWh is in the ranges I mentioned just now.

Next, I would like to discuss our approach to Blue Energy and Lithium Energy Japan going forward. We are currently in discussions and preparations with a number of partners, so I am not at liberty to discuss the details, but we believe Lithium Energy Japan will serve as the base for the manufacturing of ESS. Regarding batteries for EVs, plug-in hybrid vehicles and hybrid vehicles, we are currently in the process of carrying out a number of preparations. Blue Energy's No.2 Plant was completed this fiscal year, and both the No.1 and No.2 plants will be at full capacity with the production of batteries for hybrid vehicles. As such, going forward, there will be a need for us to think

about how to structure our production system going forward, including having discussions with partners.

【Q10】

My first question pertains to an operating profit forecast of over 10 billion yen in the not-too-distant future for the Automotive Lithium-ion Battery segment. Could you please elaborate further on this topic?

【A10】

Allow me to answer your first question, which pertains to a comment made within GS Yuasa Report 2022, by Kenji Kohno, Business Unit Manager of Lithium-ion Batteries. In the report, Mr. Kohno states that “the situation is such that we will be able to forecast operating profit of over 10 billion yen in the not-too-distant future.” Things have fallen into place to allow Blue Energy - which manufactures batteries for hybrid vehicles - to deliver high levels of operating income with a high level of certainty. Starting in 2023, annual production capacity will go up to 50 million cells per year, from a baseline of 20 million cells per year. Furthermore, by the latter half of the decade, we expect capacity to reach 70 million cells per year. In light of this, we have high conviction that sales and profits will increase for Blue Energy. Regarding Lithium Energy Japan, as well, we believe we will be seeing further demand for industrial storage batteries in the form of ESS, and batteries for EVs, primarily commercial vehicles.

That comment on the GS Yuasa Report is aspirational, and means we are aiming for 10 billion yen, so we are not yet at a stage where we have established a concrete path to achieve these numbers. With that being said, we would like to aim for these numbers over the course of the Sixth and Seventh Mid-Term Management Plans.

【Q11】

What is the outlook for 12V lithium-ion batteries?

【A11】

On the topic of 12V lithium-ion batteries, we have secured contracts with two European manufacturers of luxury vehicles, although I am not at liberty to share the specifics here. Specifically, in fiscal year 2022, the supply quantity to one of these companies has increased.

【Q12】

Could you tell us about GS Yuasa's outlook for subsidies and the supplementary budget proposal for the storage batteries industry, to the extent you can here?

【A12】

As a manufacturer of these batteries, these subsidies are most welcome and beneficial. These subsidies for the development and production of new automotive batteries and ESS are most welcome, and we would like to utilize them to the fullest extent possible. We are in contact and in discussions with the Ministry of Economy, Trade and Industry, so we would like to leverage government subsidies so that we can further grow the scale of our business.