Automotive Lithium-ion Batteries

Devoting management resources to business expansion

Against the backdrop of tighter corporate average fuel economy (CAFE) and CO_2 emissions regulations, we increasingly receive inquiries from Japanese automakers about lithium-ion batteries for hybrid electric vehicles (HEVs). On the other hand, there are only a limited number of suppliers, and there is healthy competition on the market. In light of these trends, we will focus on investing in lithium-ion batteries for HEVs and swiftly implement various measures to take advantage of business chances.

In fiscal 2019, the automotive lithium-ion battery business as a whole recorded an operating loss due to upfront investment, but business results are steadily improving. We increased orders from existing customers for lithium-ion batteries for HEVs and added a major Japanese company to our roster of customers. Our Blue Energy subsidiary, a manufacturer of lithium-ion batteries for HEVs, achieved cumulative loss elimination in fiscal 2019. As a result of these achievements, we forecast that sales and profit will increase in the medium to long term after fiscal 2021. In order to secure the necessary production capacity, it was decided to build a second Blue Energy plant, which is expected to be completed in fiscal 2022.

Fiscal 2019 also saw the completion of our plant in Hungary to produce 12V lithium-ion batteries which started operations in October. While firming up our mass production framework, we are also working to improve profitability.

Recent predictions expect that new car sales will decrease due to the influence of the novel coronavirus pandemic. The business environment for automotive lithium-ion batteries, which are functional components of eco-friendly vehicles, is expected to be difficult, but we will strengthen our business foundation by making capital investments and improving our earnings structure to achieve the goals of the Fifth Mid-Term Management Plan and subsequent growth.

Kenji Kohno
Executive Officer
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Long-term strategy (Vision for 2030)

Long-term vision

- Establish our position and improve profits through enhancement and evolution of alliances with reliable partners
- Promotion of hybrid electric vehicles (HEVs) and 12V lithium-ion batteries
- Expand on successes in development of high capacity batteries for plug-in hybrid electric vehicles (PHEVs) and other electric vehicles (EVs) into industrial applications

Recognition of issues and the future image

Current issues	Vision for 2022	Future image of the company
Excessive capital investment competition	**Promoting lithium-ion batteries for HEVs and 12V lithium-ion batteries**	**Expand industrial applications and utilize post lithium-ion batteries research findings**

SWOT

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

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

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 battery

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

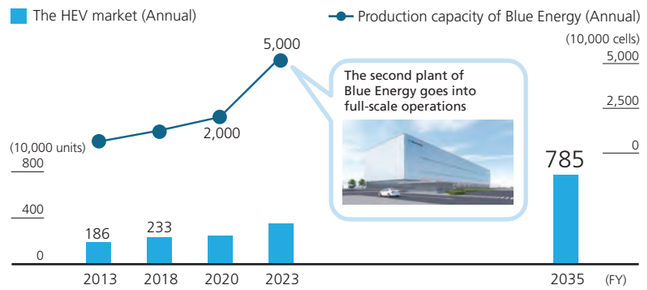
In Focus

Increasing production capacity of HEV batteries in anticipation of long-term demand growth

The global market for HEVs is estimated to grow to 7.85 million units by fiscal 2035.

Since first delivering HEV batteries to Honda Motor Co.,Ltd. in fiscal 2011, we have steadily expanded our production capacity and began supplying HEV batteries to Toyota Motor Co.,Ltd. in fiscal 2020. In fiscal 2019, the decision was taken to build a second Blue Energy plant in order to meet the further expansion of demand. We plan to double our production capacity by 2023.

The HEV market and our production capacity



Source: Fuji Keizai, *2019 Edition In-depth Analysis Survey of HEV- and EV-related Markets.* Partially estimated.

Automotive Lithium-ion Batteries

Mid-Term Business Policy (Fifth Mid-Term Management Plan)

Business policy

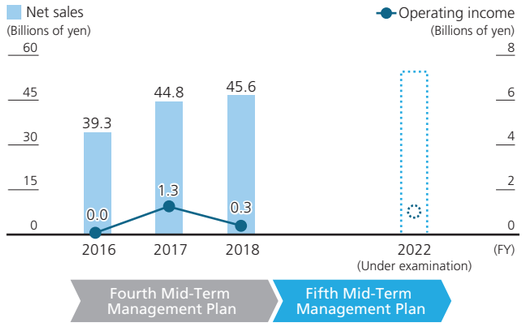
Build the foundation for a differentiation strategy with a view to future business expansion by grasping changes in the business environment in advance

Strategy and important tasks

- Focus on lithium-ion batteries for HEVs 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 PHEVs and other EVs
- Promote development of future technologies that will differentiate us from competitors

Performance plan

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



Review of operations

Fiscal 2019 (fiscal year ended March 31, 2020)

Net sales in the automotive lithium-ion battery business in fiscal 2019 totaled 42,264 million yen (down 3,320 million year on year), and operating loss was 1,708 million yen (deteriorated 2,009 million yen year on year).

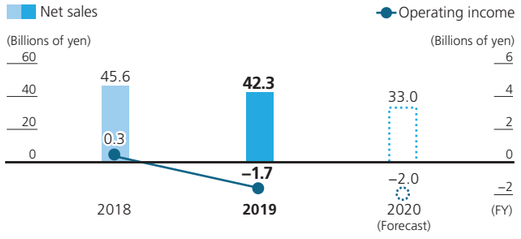
Global demand on the HEV market (Data 1) is growing worldwide, and our sales volume increased in fiscal 2019 when we started supplying lithium-ion batteries for new HEV models. On the other hand, overall segment sales declined due to a drop in sales of lithium-ion batteries for PHEVs to overseas automobile manufacturers. In terms of profit and loss, the increase in costs associated with the start of operations at the Hungary plant had an impact.

Fiscal 2020 (fiscal year ending March 31, 2021)

Our business forecast for fiscal 2020 is as follows: net sales of 33 billion yen (down 21.9% year on year), operating loss of 2 billion yen (deteriorated 292 million yen year on year).

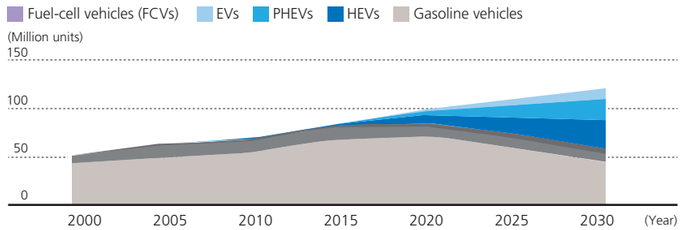
In addition to expanding sales of lithium-ion batteries for HEVs and enhancing our production capacity, we will launch and steadily pursue mass production of 12V lithium-ion batteries at our plant in Hungary. We will also strive to provide a stable supply of lithium-ion batteries for the power storage system market, which we entered in fiscal 2019.

Financial performance



Data

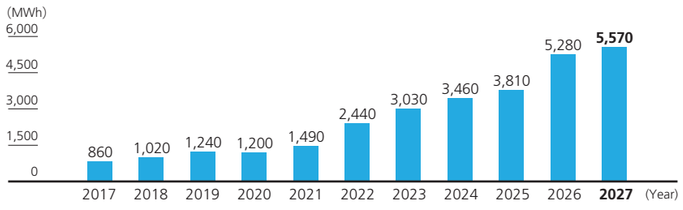
1 Global market forecast for automobiles



Source: International Energy Agency, *Energy Technology Perspectives 2017*

With the implementation of CAFE in various countries, stricter vehicle fuel efficiency standards are likely to be introduced, and the HEV market is expected to expand over the medium to long term. Japanese automakers in particular are focused on this market sector, but other companies are giving it attention as well.

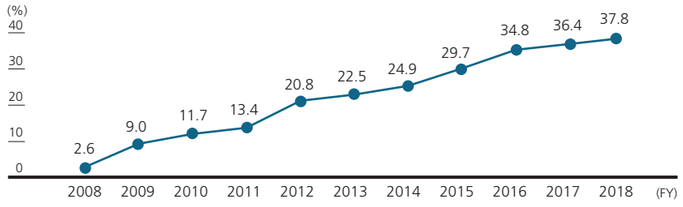
2 Sales volume trend of lithium-ion batteries for HEVs



Source: Fuji Keizai, *2020 Edition In-depth Analysis Survey of HEV- and EV-related Markets*
*Outlook for 2020, forecast for 2021 and beyond.

Due to the economic downturn caused by the novel coronavirus pandemic and other factors, demand for HEV-use lithium-ion batteries will temporarily decline as well in 2020, but because of the strong HEV focus of Japanese automakers in particular, demand is expected to keep growing in the medium and long term.

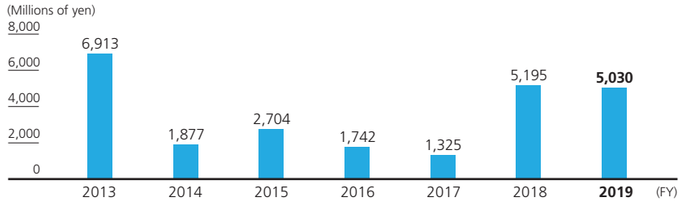
3 Ratio of next-generation vehicles* in new vehicle sales (passenger cars) in Japan



Source: Website of Japan Automobile Manufacturers Association, Inc.
*HEVs, PHEVs, EVs, FCVs, clean diesel vehicles

The ratio of next-generation vehicles such as HEVs and PHEVs in new vehicle sales in Japan is increasing year by year. Globally, the demand for HEVs, which do not require recharging and have high environmental performance, is growing, especially in Europe and the United States.

4 Capital investment



Our capital investment in fiscal 2019 was 5,030 million yen. This was primarily due to the initial investment for mass production at Blue Energy and the initial costs associated with the start-up of the Hungary plant.