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1. The Ministry of Economy, Trade and Industry Held the first meeting of the Public-Private Storage Battery Industry Strategy Council

1.1 The Public-Private Storage Battery Industry Strategy Council¹

On November 8, 2021, the Ministry of Economy, Trade and Industry (METI) held the first meeting of the Public-Private Storage Battery Industry Strategy Council. Considering Japan's greenhouse gas reduction target for 2030 and its pledge to become carbon neutral by 2050, storage batteries are one of the most important enabling technologies for both electric vehicles (EVs) and renewable energy. Though the global storage battery market is expected to grow sharply, Japan's storage battery industry is gradually losing its technological advantage and competitive edge in the market. Therefore, METI has recently established the Public-Private Storage Battery Industry Strategy Council to strengthen Japan's industrial competitiveness. The Council aims to develop a strategy to restore Japan's international competitiveness in the storage battery market through working with the private sector to solve problems such as securing material resources.

The Council will continue to hold meetings regularly and plans to formulate a storage battery industry strategy around May 2022. The council has approximately thirty members, including representatives from government agencies, private companies, industry organizations, academia, and other organizations:²

- Government officials, such as the METI and the Agency for Natural Resources and Energy (ANRE)
- Eight storage battery manufacturers, including Panasonic Energy and Kyocera
- Five battery component suppliers, such as Sumitomo Metal Mining and Nichia
- Four industry groups, including Battery Association of Japan (BAJ), Japan Automobile Manufacturers Association (JAMA), Japan Electrical Manufacturers' Association (JEMA), Battery Association for Supply Chain (BASC)
- Four industry experts and professors
- Five observers

By May 2022, a total of four meetings will be held to exchange information among participants and establish a storage battery industry strategy. The main focus areas for strategy are as follows.

- (1) Securing upstream resources
- (2) Expanding and strengthening the production base of the supply chain
- (3) Establishing relevant rules, such as fostering supply chain management
- (4) Commercializing the next-generation storage batteries and ensuring human resources development

¹ https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy.html
https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy/0001.html
https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy/0001/02.pdf

² https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy/0001/02.pdf

- (5) Expanding the demand for batteries, including in-vehicle batteries and stationary batteries
- (6) Promoting battery recycling and reuse
- (7) Facilitating international cooperation

1.2 Contents of the First Public-Private Council Meeting

In the first council meeting, three representatives from the council member organizations—METI, BASC, and BAJ—each presented the current trends and challenges in the storage battery industry. METI’s speaker discussed the current situation for the storage battery industry, recent market trends, supply chain issues, international market trends, industrial structure analysis, and METI’s efforts. The BASC and BAJ raised concerns about the weaknesses of the storage battery supply chain in Japan. Policy proposals were also made during the meeting about how to contribute towards establishing a carbon-free society by 2050. Members exchanged their views and information on issues of the storage battery market.

The meeting focused on identifying critical challenges for the storage battery industry, and how the Japanese government and industry members can respond appropriately. The meeting explored five crucial issues:

- (1) Establishing a robust supply chain
- (2) Ensuring a stable material supply chain and security policy
- (3) Promoting standardization, the rule-making process, international strategy development, and domestic market penetration
- (4) Facilitating the recycling and reuse of in-vehicle and stationary storage batteries, and
- (5) Promoting innovation and human resources development.

(1) Establishing a robust supply chain

Storage batteries are considered to be a key technology for reaching carbon neutrality. Although Japan led in the initial market due to its technological superiority, Chinese and Korean manufacturers have expanded their market share as their storage battery systems have increasingly been adopted. The share of Japanese in-vehicle batteries manufacturers in the global market decreased from 40.2% in 2015 to 21.1% in 2020. The share of stationary lithium-ion batteries manufacturers dropped from 27.4% to 4.5% over the same period. As international investment competition continues, maintaining and expanding the share of Japanese manufacturers is crucial. Therefore, it is essential to develop a consistent, comprehensive supply chain, including mineral materials, battery materials, battery cells, battery packs (control technology), storage battery systems, and battery recycling and reuse. The Council will examine and consider which segment of the supply chain they should focus on.

(2) Ensuring a stable material supply chain and security policy

Lithium, cobalt, and nickel, which are the raw materials for the positive electrode material of storage batteries, tend to rely on a variety of specific resource-producing countries for mineral resources reserves, production, and refining. For lithium, for example, three countries accounted for a share of more than 50% in reserves, production, and refining, respectively: Chile (reserves), Australia (production), and

China (refining). Graphite, which is a raw material for negative electrodes, is heavily dependent on the production and import from China.

The Council will consider measures to ensure a stable supply of materials and components in the supply chain, along with security and safety in storage battery applications.

(3) Promoting standardization, the rule-making process, international strategy development, and domestic market penetration

At the current stage of the transition to a carbon neutral society, it is important to understand the carbon footprint of the entire storage battery supply chain. However, under the current system, the calculation methods of CO2 emissions in the upstream supply chain vary among battery manufacturers. Thus, it is necessary to improve consistency across the domestic supply chain, for instance, by unifying the carbon footprint calculation method for the entire storage battery supply chain.

Internationally, there is a growing trend to consider human rights as a corporate responsibility. Laws and regulations requiring private firms to implement due diligence processes are being enacted in Europe and the U.S. to identify and prevent the risk of human rights violations. Since there are many uncertainties and considerations for human rights measures, it is challenging for Japanese manufacturers to decide how to adopt and implement them. In order to help the industry to undertake human right measures, the Council will collect and provide due diligence-related information with the support of consulting services.

(4) Facilitating the cross-cutting recycling and reuse of in-vehicle and stationary storage batteries

Storage battery recycling and reuse are playing an important role in tackling climate change and achieving a circular economy. The Council will study and investigate cross-cutting recycling and reuse issues and potential applications for in-vehicle and stationary storage batteries, including Vehicle-to-Grid (V2G). To promote the development of storage battery recycling and reuse, during the meeting, the BAS proposed relevant policies such as creating standards for easy-to-recycle batteries; giving incentives to promote battery recycling; supporting overseas raw material imports; facilitating business-to-business (B2B) recycling through providing incentives on recycling, supporting research and development, and promoting the development of domestic raw material processing plants.

(5) Promoting innovation and human resources development

Lithium-ion batteries remain the mainstream storage battery. However, global manufactures are accelerating the development of next-generation batteries, such as all-solid-state batteries. In the global storage battery market, Japan currently has a technology advantage. However, China, which has a business advantage and is entering the global market, is competing with Japan in battery technology. Japan was the global leader in the number of patent applications for all-solid-state batteries from 2001 to 2018, while China has increased its applications significantly in recent years. Starting in 2030, Japan will need to accelerate its research and development toward the full-scale commercialization of all-solid-state batteries. For that reason, the Council will fund storage battery technology development.

The Council will also seek to facilitate the development of a business environment that supports the innovation and commercialization of next-generation batteries, and will promote the development of human resources in this field.

2. Agency for Natural Resources and Energy Considers the Introduction of a New Investment System to Secure Decarbonized Power Source Next Year^{3 4}

On December 3, 2021, the Agency for Natural Resources and Energy (ANRE) announced that it is considering to introduce a new measure to secure investment in decarbonized power sources in 2023.

The announcement came after the 13th meeting of the "Sustainable Power System Construction Subcommittee," which is one of the basic policy subcommittees of the "Comprehensive Resources and Energy Investigation Committee" established by ANRE. The basic policy of the new system is to promote investment in decarbonized power sources that do not emit carbon dioxide (CO₂) during power generation and are expected to provide a stable supply. Decarbonized power sources are expected to include not only hydrogen, ammonia, and CCUS (carbon capture utilization and storage), but also renewable energy, carbon recycling, and storage batteries.

The Japanese government aims at achieving carbon neutrality by 2050, and the key to achieving that goal is to make renewable energy the main power source. However, it is first necessary to substantially maintain the supply capacity and adjustment capacity of thermal power generation. In the future, the supply capacity will be increased by the decarbonized power sources as well, such as hydrogen, ammonia, storage batteries, etc.

Currently, new investments in power sources have been stagnant. However, considering the lead time for introducing new power sources that contribute to achieving both carbon neutrality and a stable supply, it is important to encourage new investments through changes to the existing capacity market system design. Specifically, mixed power sources will be allowed to bid as a part of the target procurement amount of the current capacity market, and successful bidders will receive capacity payments for multiple years after the generator starts operations (currently, they only receive a one-year payment). Therefore, investors will have new ways to improve the predictability of long-term cost recovery of the huge initial investments.

Based on the above plan, the details of this new system will be examined by the System Review Working Group, which has been studying the ideal capacity market under ANRE. The Japanese government will continue to investigate issues for decarbonized power sources, particularly ammonia fuel for thermal power generation as ammonia could be the best option to be integrated into existing thermal power plants. Japan plans to introduce and expand the use of ammonia fuel for co-firing at thermal power plants and transition to 100% ammonia firing in the future. The government will consider whether and to what degree that the new investment for ammonia co-firing should be covered by the new investment system.

³ https://www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/system_kouchiku/013/013_10.pdf

⁴ https://www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/system_kouchiku/013/013_13.pdf