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Japan Energy Newsletter

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Table of Contents

1 Japan's Storage Battery Industry Strategic Council under the Ministry of Economy, Trade and Industry is Developing a Strategy Plan to Increase Storage Battery Production Tenfold by 2030

On April 22, 2022, the Ministry of Economy, Trade and Industry (METI) announced that it will seek to increase the production capacity of storage batteries by Japanese companies to 600GWh by 2030, which would be a tenfold increase from the current capacity level. To secure the purchasing power for the material resources that are necessary for the production of storage batteries, METI aims to restore the market share of Japanese manufacturers in the world to 20% (regaining the market share that has been lost to Chinese and Korean companies) and is considering expanding the contribution of government-affiliated financing to the storage battery sector. METI is expected to officially release its storage battery production strategy plan this summer. [1]

1.1 Overview of the Storage Battery Industry Strategic Council

Considering Japan's goals to reduce greenhouse gas emissions by 46% by 2030 and achieve carbon neutrality by 2050, battery storage is an important technology to accelerate renewable energy deployment and advance the electrification of vehicles. Governments in Europe and the United States are strengthening their policies to establish a comprehensive and secure supply chain for storage batteries. In addition, startups and various types of industrial firms have entered the market by revitalizing investment, and their involvement is transforming the industry and contributing to a robust storage battery supply chain. This evolving global market has motivated Japanese public and private sector stakeholders to work to identify the challenges and opportunities in Japan's domestic storage battery industry. Therefore, METI established a Storage Battery Industry Strategic Council in November 2021 to develop measures to regain Japan's competitiveness in the global storage battery market. The council has since held four meetings.

The council is managed by METI and consists of representatives from eight battery manufacturers and five component manufacturers. In addition, it includes representatives from related industries such as automotive, electrical machinery, and transmission network groups. KDDI Corporation (a telecom operator), several experts, and government officials are also part of the council's membership.[2] An interim report was released at the council's fourth meeting on April 22, 2022.

1.2 Broad Overview of the Council's Interim Report [3]

Considering the country's goal to achieve carbon neutrality by 2050, the interim report addresses the important role of battery storage in advancing electric vehicles (EVs) development and as a key factor in enabling renewable energy deployment. Storage batteries are also being utilized as a backup power source for critical infrastructure and

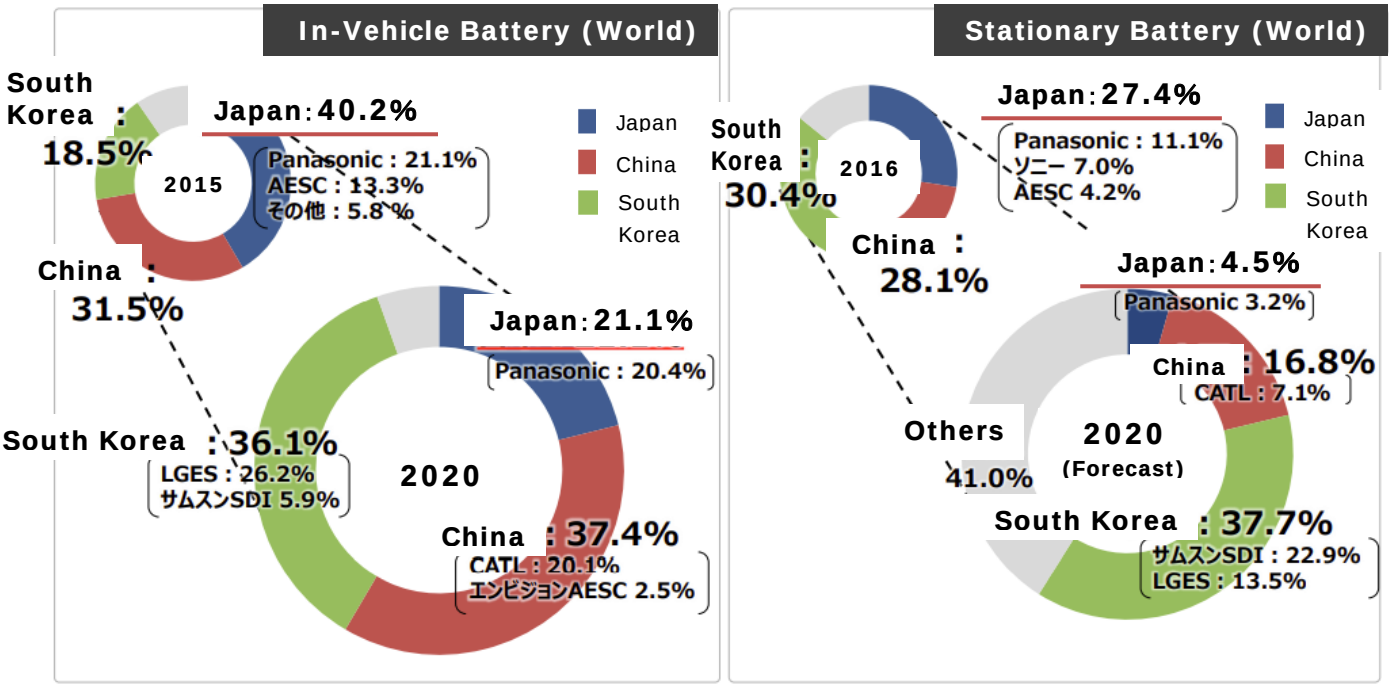
[1] https://www.denkishimbun.com/archives/199813
[2] https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy/0004/02.pdf
[3] https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy/0004/03.pdf

facilities such as 5G base stations and data centers and various information technology (IT) equipment to support the foundation of the digital society and strengthen energy resilience.

The storage battery market is expected to expand for both in-vehicle and stationary use. The market value was about $38.99 billion USD in 2019 and is expected to grow to $311.92 billion in 2030 and $779.8 billion in 2050. The in-vehicle storage battery market will expand rapidly along with the expansion of the EV market. In contrast, the stationary storage battery market, though about one-tenth the size of the in-vehicle storage battery market in 2019, is also expected to grow significantly by 2050. In the 1990s, Japan took the lead in the global storage battery market, but Korean and Chinese manufacturers have become dominant since they entered the market in 2010, which has led to the current decline in Japanese makers' global market share.

The council's interim report noted that Japan's storage battery supply chain faces several challenges, including an overreliance on battery raw materials and resources from specific countries such as China and Congo. Japan is losing its global competitiveness in the battery cell market, and there is a risk that it will become more dependent on overseas markets. The interim report concluded that Japan needs to establish and maintain a robust, comprehensive supply chain. This will require actions such as securing battery materials and developing battery cell manufacturing bases.

Changing Trends in the global market share of in-vehicle and stationary lithium-ion batteries



Source: METI[4]

[4] https://www.meti.go.jp/policy/mono_info_service/joho/conference/battery_strategy/0004/03.pdf

The interim report emphasized that the liquid-based lithium-ion battery (liquid LIBs) remains the mainstream battery technology, while all-solid-state LIBs are emerging and are expected to be deployed in the EV market in the late 2020s. Japan has taken the lead in the research and development (R&D) of all-solid-state LIBs. However, in recent years, other countries, particularly China, have bolstered their R&D activities in the area as well.

The council examined Japan's existing battery policy direction, focusing on concentrating investments on the development of all-solid-state batteries. Japan faces fierce global competition in the liquid LIB market from foreign manufacturers with strong government support for technology development and cost reduction. Unless the proper measures are implemented, there is a risk that Japanese manufacturers may be forced to withdraw from the global market before the commercialization of all-solid-state batteries.

Based on its discussions regarding the above issues, the Council has set the following three goals.

(1) To establish a domestic battery storage manufacturing base, Japan will review its existing strategy, provide large-scale investment to upstream resources, and strengthen the manufacturing base for liquid-based LIB.

(2) Japan will strategically expand into the overseas storage battery market and secure a global presence, supporting Japanese manufacturers who lead the global market and strengthening their competitiveness.

(3) Japan will develop and deploy the next-generation storage batteries, such as all-solid-state batteries, and will seek to steadily gain a high global market share.

2 Ten Japanese Decarbonization Projects and Initiatives in Asia

On April 25, 2022, during the 1st Asia Green Growth Partnership Ministerial Meeting (AGGPM) Public-Private Forum, the Ministry of Economy, Trade and Industry (METI) announced ten new memorandum of understandings (MOUs) and partnerships on decarbonization initiatives and projects signed by Japan and Asian nations' governments and their partners. The Forum has more than 2,100 registered participants from more than 60 countries worldwide.[5] METI has supported these projects and initiatives as part of the 10 billion dollars in funding that it provides through the Asia Energy Transition Initiative (AETI), an initiative METI launched on May 24, 2021, to boost sustainable economic growth while securing carbon neutrality in Asia. The AETI provides funding for projects on renewable energy, energy savings, and liquefied natural gas (LNG) in the region.[6] One of the funded business partnerships is between IHI Corporation and PT Pembangkitan Jawa-Bali (PJB), an Indonesian state-owned electric power company. Through the partnership, IHI plans to commercialize its ammonia fuel technology for thermal power plants, which does not emit carbon dioxide (CO2) when burned. Below is a brief overview of 10 decarbonization projects and initiatives through MOUs and partnerships.[7]

[5] https://www.meti.go.jp/press/2022/04/20220425001/20220425001.html
[6] https://www.meti.go.jp/press/2021/05/20210528007/20210528007.html
[7] https://www.meti.go.jp/press/2022/04/20220425001/20220425001-2.pdf

Ten decarbonization projects and initiatives in Asia through MOUs and partnerships with Japanese entities

Number	Japanese Company	Target Country	Overview
1	Mitsubishi Corporation	Asian countries	Mitsubishi Corporation is participating in the Breakthrough Energy Catalyst (BEC), a program established by Bill Gates in 2021 that aims to accelerate the social implementation of decarbonization projects by investing in technology R&D projects. Mitsubishi Corporation was the first company in Asia to participate in the BEC, with a $100 million investment.
2	JERA[8]	Bangladesh	JERA signed an MOU to create a decarbonization roadmap with Bangladesh Power Generation Company Summit Power. JERA will support Summit Power in developing a decarbonization roadmap. It will also consider partnering with Summit Power to create opportunities to utilize hydrogen and ammonia and introduce renewable energy sources, such as storage batteries.
3	Nippon Export and Investment Insurance (NEXI)	Indonesia	Nippon Export and Investment Insurance (NEXI) has signed an MOU with Indonesian state-owned electric power company PT PLN. NEXI's loan insurance will help Japanese private financial institutions to finance PLN's environmental projects.
4	JGC Holdings	Indonesia	JGC Holdings signed an MOU with Pertamina, an Indonesian state-owned oil company. JGC and Pertamina will conduct joint decarbonization commercialization studies, leveraging JGC's experience and technology in hydrogen, ammonia, carbon capture and storage (CCUS), and biogas.
5	Osaka Gas, INPEX, JGC Holdings	Indonesia	Osaka Gas, INPEX, and JGC Holdings signed a joint feasibility study agreement with the Indonesian state-owned oil company Pertamina on the utilization of biomethane derived from Palm Oil Mill Effluent (POME), a waste liquid. POME is generated during the palm oil squeezing process in Sumatra and Kalimantan islands in Indonesia. The project seeks to provide refined POME to Indonesian domestic consumers in Java.
6	IHI	Indonesia	IHI has partnered with PJB, a subsidiary of the Indonesian state-owned power company PT PLN, to examine the use of carbon-neutral fuels such

[8] JERA is a power generation company established by TEPCO Holdings and Chubu Electric Power.

			as ammonia by existing boilers in Indonesia, such as at the Gresik thermal power plant.
7	Shizen Energy	Malaysia	Shizen Energy, a Japanese renewable energy power generation business, has collaborated with Nusa Baiduri Consortium to establish Shizen Malaysia Sdn. Bhd, a joint venture. Through Shizen Malaysia, Shizen Energy and the Consortium will conduct a floating solar power feasibility study with the intent to eventually build a 150MW floating solar power plant in Malaysia.
8	ITOCHU Corporation	Malaysia	ITOCHU and Malakoff Corporation Berhad (Malaysia) have signed an MOU to jointly conduct a hydrogen and ammonia commercialization survey in Johor, Malaysia.
9	INPEX and JGC Holdings	Thailand	INPEX and JGC Holdings have partnered with PTT Exploration and Production Public Company (PTTEP), a state-owned resource development company in Thailand, to launch the Thailand Carbon Capture and Storage Initiative. The initiative will investigate the applications of CO2 capture and storage (CCS) technology in the oil and gas upstream and downstream industries, the heavy chemicals industry, and power plants in Thailand.
10	Renova	Vietnam	Renewable Energy Developer Renova signed an MOU with Vietnam's Petro Vietnam Technical Service Corporation (PTSC) to collaborate on offshore wind power.

Source: METI and other sources.[9]

[9] https://www.meti.go.jp/press/2022/04/20220425001/20220425001-2.pdf