



Battery recycling japan

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Storage battery demand is expected to increase because of greater efforts to decarbonise, especially in the country's high-emitting automobile and power sectors.

Recycling battery materials has increasingly become a trend among advanced economies. But Japan has few domestic resources and currently relies almost entirely on imports of critical metals to produce batteries. Battery materials include lithium, cobalt and nickel.

Japan could face challenges in securing sufficient battery metals in an increasingly competitive international market, as supply sources are already limited. Concerns over stable supplies have been also growing, especially after Russia's invasion of Ukraine in February, which disrupted global commodity trade.

Six Japanese firms, including Sumitomo Metal Mining, JX Nippon Mining and Metals, Sumitomo Chemical, Kanto Denka Kogyo, Jera and Nissan Motor, are now working together to develop a highly sophisticated recycling technology to recover rare metals, mainly from used storage batteries for electric vehicles (EVs). The firms are supported by state-owned energy research agency Nedo. With this project, Japan aims to establish the technology to achieve a recycling ratio of 70pc for lithium, 95pc for nickel and 95pc for cobalt by the April 2030-March 2031 fiscal year.

Industry group Battery Association for Supply Chain has previously requested the government to establish what it terms a "battery to battery" supply chain, where the proportion of recycled battery use would ideally surpass that of non-recycled batteries by around 2040, while Tokyo promotes the expansion of overseas investment to secure battery materials.

Japan's domestic lithium-ion battery production capacity is expected to reach 150 GWh/yr by 2030, up by around eight times from the current 20 GWh/yr, according to Meti. To achieve its goal, Japan needs to secure 100,000 t/yr of lithium, 90,000 t/yr of nickel, 150,000 t/yr of graphite, 20,000 t/yr of cobalt and 20,000 t/yr of manganese.

Meti also estimates Japan's global output capacity of lithium-ion batteries at 600 GWh/yr in 2030, up from the current 40 GWh/yr. This will require 380,000 t/yr of lithium, 310,000 t/yr of nickel, 600,000 t/yr of graphite, 60,000 t/yr of cobalt and 50,000 t/yr of manganese.

Tokyo is now discussing the inclusion of storage batteries in the list of materials deemed vital to ensure the country's way of life and economic growth, as they are necessary to expand the use of EVs and renewable

electricity, in line with the country's goal to achieve a net-zero society by 2050.

Japan aims to completely replace new sales of passenger automobiles with EVs -- such as battery, fuel cell, plug-in hybrid and hybrid EVs -- by 2035. The government is also attempting to electrify 20-30pc of newly sold small-scale commercial vehicles by 2030.

Storage batteries have also been deemed a necessary back-up power source in Japan, to increase the use of unstable weather-dependent renewables. Japan targets a 36-38pc share for renewables in its 2030-31 power mix, double the 18pc in 2019-20.

Besides storage batteries, renewable power facilities also require rare metals in the construction process. Japan aims to develop 10GW of offshore wind power by 2030, which will require 115,000 t/yr of copper and 1,060 t/yr of neodymium, Meti said. The requirements are equivalent to around 10pc of the country's total copper consumption of 1.06mn t and around 23pc of neodymium use of 4,624t in 2018.

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