# Japan Durable Carbon Dioxide Removal (Cdr) Demand Market Forecast 2030-2040

Market Report | 2024-10-12 | 146 pages | Inkwood Research

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**Report description:**

KEY FINDINGS
The Japan durable carbon dioxide removal (CDR) demand market is expected to grow at a CAGR of 14.23% from 2030 to 2040, reaching a revenue of $1994.79 million by 2040. In terms of volume, the market is forecasted to grow with a CAGR of 15.40%, reaching 10.31 million tons by 2040.
MARKET INSIGHTS
The Japan durable carbon dioxide removal (CDR) demand market within the energy sector is influenced by several specific drivers. One major driver is the transition of Japan's energy mix. Despite the expansion of renewable energy sources, fossil fuels, particularly liquefied natural gas (LNG) and coal, continue to play a critical role in Japan's energy generation due to the country's limited domestic energy resources. This reliance creates a strong need for durable CDR technologies to mitigate emissions from existing fossil fuel-based plants, which remain vital for a stable energy supply.
Another important driver in this market is Japan's focus on developing hydrogen as a clean energy source. Hydrogen production, particularly when derived from natural gas, is associated with substantial CO2 emissions. By combining hydrogen production with biomass with carbon removal and storage (BiCRS) or other durable CDR solutions, the nation can pursue its hydrogen economy ambitions while minimizing associated carbon emissions. The integration of negative emissions technologies (NETs) with hydrogen production is seen as a strategic way to address both energy needs and climate objectives, thus creating further demand for durable CDR solutions.
A key challenge in the adoption of durable CDR technologies in Japan's energy sector is the geographic limitation for large-scale CO2 storage. The country lacks extensive geological formations suitable for carbon sequestration, such as deep saline aquifers, which are more prevalent in regions like North America and Europe. This limitation complicates the deployment of direct air carbon capture and storage (DACCS) and other technologies that rely heavily on geological storage. As a result, Japan faces the challenge of either developing offshore storage infrastructure or exploring alternative CO2 utilization methods, both of which are costly and require significant technological advancements.
Additionally, the high upfront cost of implementing durable CDR methods presents a barrier, particularly in a competitive energy market where cost efficiency is critical. Establishing the infrastructure for capturing, transporting, and storing carbon dioxide adds financial pressure, especially for older fossil fuel plants nearing the end of their operational life. These plants may be reluctant to invest in expensive carbon capture retrofits, opting instead for less costly measures like purchasing durable CDR credits through voluntary and non-voluntary carbon markets. However, this approach does not address the long-term need for permanent carbon

removal solutions. The cost issue is further exacerbated by Japan's dependence on imported energy, which leaves energy companies with limited financial flexibility to invest in durable CDR technologies.
With Japan's goal to achieve net-zero emissions by 2050, integrating durable CDR methods like direct air carbon capture and storage (DACCS) into conventional power plants allows facilities to continue operations while reducing their carbon footprint. Moreover, advancements in carbon capture technology that enable greater scalability and efficiency are attracting investments from both the private sector and government bodies. In turn, these factors are set to influence the market growth in Japan during the forecast period.
SEGMENTATION ANALYSIS
The Japan durable carbon dioxide removal (CDR) demand market is segmented into sectors, which are further sub-categorized into consumer, industrial, mobility, manufacturing/technology and hardware, services, energy, digital, and healthcare.
In the services sector, demand for durable carbon dioxide removal (CDR) is growing as companies aim to minimize the carbon impact of their operations. Financial services, consulting firms, and other professional service providers are integrating CDR into their sustainability strategies to achieve carbon neutrality and meet regulatory standards. These companies often invest in CDR projects such as direct air capture (DAC) or reforestation as part of their environmental, social, and governance (ESG) commitments. Additionally, they offer carbon offset programs to clients, enabling them to offset emissions associated with travel, office operations, and digital services.
COMPETITIVE INSIGHTS
Major firms operating in the Japan durable carbon dioxide removal (CDR) demand market include Mitsubishi Heavy Industries (MHI), Tokyo Gas Co Ltd, INPEX Corporation, etc.
Mitsubishi Heavy Industries Ltd (MHI) manufactures a diverse range of heavy machinery and provides comprehensive social infrastructure solutions. Its products and services cover power generation, including thermal, nuclear, renewable energy systems, and environmental technologies such as chemical plants and durable carbon dioxide removal (CDR) solutions.
MHI also produces industrial machinery, steel structures, air-conditioning systems, shipbuilding, and space systems. The company offers transportation systems and services for land, sea, and air. Additionally, MHI provides integrated defense solutions across land, sea, air, and space applications. It operates in North America, Latin America, Asia, Europe, the Middle East, Africa, and Oceania, with headquarters located in Chiyoda-ku, Tokyo, Japan.

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