

Carbon Capture Utilization and Storage Market Size, Challenges, Business Overview and Forecast Research Study 2031

The demand from the construction industry for lower-emission building materials produced using CCUS technology is expected to be a key driver of market growth.

TEXES, AUSTIN, UNITED STATES, April 17, 2024 /EINPresswire.com/ -- The SNS Insider report estimates the [Carbon Capture Utilization and Storage Market](#) was valued at USD 3.62 billion in 2023 and is expected to reach USD 18.52 billion by 2031, growing at a significant CAGR of 23.5% over the forecast period 2024-2031.



Carbon Capture Utilization and Storage Market

Growing Demand for CCUS Technology to Reduce Carbon Footprint

The growth of CCUS market is primarily driven by a growing focus on reducing CO2 emissions to combat climate change. Governments worldwide are actively implementing stricter environmental regulations and offering tax benefits to companies that adopt CCUS technology. Additionally, the rapid industrialization across the globe has led to a surge in CO2 emissions. To mitigate this, governments are establishing numerous CO2 capture and storage plants, propelling market expansion.

Growing investments are being directed towards research and development activities to create next-generation CO2 capture technologies that address three main challenges: reducing the impact of CO2 capture on power generation capacity, improving cost-effectiveness, and scaling up novel technologies for full-scale implementation in power plants. Several technology providers are heavily invested in reducing carbon-capturing costs, aiming to bring it down to less than USD 30 per million tons of CO2 captured. This inclination towards advanced technological solutions will significantly increase CCUS adoption globally.

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Despite the promising growth, the CCUS technology faces some challenges. The significant capital investment required for implementation, operation, and maintenance deters many industries from adopting the technology. Additionally, integrating CCUS into existing plants can reduce their process efficiency. The entire CCUS value chain, including capture, transportation, storage, and utilization, incurs costs that are not currently offset by sufficient revenue generation. For example, deploying CO₂ scrubbers and air separation units increases initial CAPEX and operational costs. Furthermore, exploring, assessing, and preparing storage sites along with monitoring for potential CO₂ leakage add to the overall expenditure. These factors create a significant hurdle for companies considering CCUS adoption.

Some of the Key Players Included are:

- Aker Solutions
- Mitsubishi Heavy Industries Limited
- Fluor Corporation, Equinor ASA
- Royal Dutch Shell Plc
- Linde Plc
- JGC Holdings Corporation
- Exxon Mobil Corporation
- Total Energies SE
- Schlumberger Limited
- Honeywell International Inc

Recent Developments

- June 2023: TotalEnergies SE, Petronas, and Mitsui & Co. Ltd., collaborated on a carbon capture and storage (CCS) project in Malaysia through a development agreement.
- April 2023: Fluor Corporation signed a license agreement with Federated Co-Operatives Limited (FCL) to implement Fluor's Econamine FG PlusSM carbon capture technology at Saskatchewan, Canada.

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Segment Analysis

By Service: The capture segment held the dominating revenue share of over 35% in 2023. This is because carbon capture is the initial stage of CCUS and is applicable to various large-scale emission sources.

By Technology: Pre-combustion capture led the technology segment in 2023, capturing over 40% of the total revenue. This technology eliminates CO₂ before its dilution with air or oxygen during combustion.

By End-use Industry: The oil & gas industry was the major revenue contributor in 2023. CCUS technology is used in enhanced oil recovery (EOR) techniques, helping store carbon dioxide in

geological formations and recover more oil.

By Service

- Capture
- Utilization
- Transportation
- Storage

By Technology

- Pre-Combustion Capture
- Post-Combustion Capture
- Oxy-Fuel Combustion Capture

By End-Use Industry

- Oil & Gas
- Power Generation
- Iron & Steel
- Chemical & Petrochemical
- Cement
- Others

Impact of Russia-Ukraine War on the CCUS Market

The Russia-Ukraine war has had a multifaceted impact on the CCUS market. On the one hand, the surging energy prices have revived interest in fossil fuels, potentially leading to a temporary slowdown in the adoption of CCUS technology. However, the war has intensified the need for energy independence, particularly in Europe, which heavily relied on Russian gas imports. This has spurred interest in alternative energy sources and technologies, including CCUS.

North America led the CCUS market, holding a dominant share of over 40% of the global revenue in 2023.

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The US, in particular, boasts a long history of CCUS development and deployment. Companies and institutions have been actively involved for over 35 years, leading to the creation of superior capture and storage technologies. North American regulations and policies actively encourage CCUS adoption. The US, for instance, has implemented the FUTURE Act under Section 45Q, offering tax benefits and technology support to incentivize industrial players. The region has a significant number of existing oil & gas projects that either utilize or have been retrofitted with CCUS technology. This extensive real-world implementation experience puts North America at the forefront of global CCUS adoption.

Key Takeaways for the Carbon Capture Utilization and Storage Market:

- Stringent regulations and growing public awareness regarding climate change will significantly drive the adoption of CCUS technology across the globe.
- Continuous research and development efforts focused on improving capture efficiency and reducing costs will be crucial for wider CCUS implementation.
- Government support through financial incentives and tax breaks will play a vital role in encouraging widespread adoption of CCUS technology, particularly for industries facing high upfront investment costs.
- North America is expected to remain the leader, while Europe and Asia Pacific will see significant growth driven by energy independence needs and decarbonization goals.

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