Carbon Capture, Utilization, and Storage Market to Triple by 2034, Driven by Regulations and Technological Breakthroughs

The Carbon Capture, Utilization, and Storage market is growing rapidly, driven by strict emission regulations, technological advancements

Reports And Data

VANCOUVER, BC, CANADA, August 19, 2025 /EINPresswire.com/ -- The global Carbon Capture, Utilization, and Storage (CCUS) market is set for strong growth, expanding from USD 3.0 billion in 2024 to USD 10.0 billion by 2034 at a CAGR of 13%. This surge is being fueled by strict emission regulations, government funding, and rapid advancements in capture and storage technologies.

Market Outlook

Carbon capture remains the largest part of the CCUS market, supported by industrial adoption and new cost-efficient solutions. Meanwhile, carbon utilization, particularly in enhanced oil recovery (EOR), is emerging as the fastest-growing segment as industries repurpose captured CO_2 for energy production and new materials.

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Key industries adopting CCUS include power generation, chemical manufacturing, and cement production, with the power sector leading due to regulatory pressures to cut emissions.

Regionally, North America is expected to remain the largest market, supported by favorable policies and major funding commitments, while Asia Pacific will see the fastest growth thanks to rapid industrialization and infrastructure expansion.

Growth Drivers

Regulatory Push: Governments are taking firm steps to cut carbon emissions. The U.S. Department of Energy has allocated $2.5 billion for CCUS projects with a goal of capturing 100 million metric tons of CO_2 annually by 2030. In Europe, programs like Horizon 2020 and the Green Deal are accelerating CCUS adoption.

Technological Advances: Innovations in direct air capture and bioenergy with carbon capture and storage (BECCS) are lowering costs and boosting efficiency. The Global CCS Institute reports a 30% increase in operational CCUS facilities in the last two years. ExxonMobil recently launched a new carbon capture solution expected to cut capture costs by 25%.

Funding & Partnerships: Public-private partnerships and large-scale investments are driving the development of scalable CCUS systems. According to McKinsey, capture costs could fall by 20% over the next decade due to economies of scale and improved technology.

Key Restraints

Despite its potential, the CCUS market faces challenges:

High Costs: Setting up a CCUS facility costs between $500 million and $1 billion, limiting projects mostly to governments and major corporations.

Infrastructure Gaps: Only about 30% of potential storage sites are accessible through existing CO_2 transport pipelines.

Regulatory Hurdles: Strict compliance rules in regions like the EU add up to 15% in additional costs.

Public Awareness: Lack of standardized verification systems and limited public understanding slow adoption.

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Segmentation Insights

By Product Type:

Carbon Capture – Largest segment, expected to hit USD 4.5 billion by 2034.

Carbon Utilization – Fastest-growing with 15% CAGR, driven by EOR, fuels, and building materials.

Carbon Storage – Growing steadily but hindered by infrastructure gaps.

By Application:

Power Generation – Largest, projected at USD 3.8 billion by 2034, boosted by emission mandates.

Enhanced Oil Recovery (EOR) – Fastest-growing, with 16% CAGR, combining emissions reduction with increased oil recovery.

Chemicals & Cement – Also growing as heavy industries embrace CCUS to meet sustainability goals.

By End User:

Industrial – Largest share, reaching USD 5.2 billion by 2034, covering cement, steel, and chemicals.

Energy – Fastest growth at 14% CAGR, with strong adoption in oil, gas, and power.

Government & Research – Supported by grants and pilot projects.

By Technology:

Post-combustion Capture – Largest, expected at USD 4.0 billion by 2034, widely adopted in existing plants.

Pre-combustion Capture – Fastest-growing at 15% CAGR, offering higher efficiency for new projects.

Oxy-fuel Combustion – Niche but promising for emission reduction in power generation.

By Distribution Channel:

Direct Sales – Dominates, forecasted to reach USD 6.0 billion by 2034, driven by demand for customized solutions.

Distributors – Fastest-growing at 14% CAGR, enabling broader market access.

Regional Highlights

North America: Maintains leadership with strong policy support like the U.S. Inflation Reduction Act, which provides tax credits for CCUS projects.

Asia Pacific: Fastest-growing region due to industrial expansion in China and India and rising demand for cleaner energy.

Europe: Strong growth supported by the EU's 2050 carbon neutrality targets and heavy investments in R&D.

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Carbon Capture, Utilization, and Storage Competitive Strategies & Notable Developments

ExxonMobil

Shell

Chevron

TotalEnergies

Equinor

Occidental Petroleum

Sinopec

PetroChina

Mitsubishi Heavy Industries

Saudi Aramco

Carbon Capture, Utilization, and Storage Market Segmentation

By Product Type

Carbon Capture

Carbon Utilization

Carbon Storage

By Application

Power Generation

Chemical Production

Cement Manufacturing

Enhanced Oil Recovery (EOR)

By End User

Industrial

Energy

Government & Research

By Technology

Pre-combustion Capture

Post-combustion Capture

Oxy-fuel Combustion

By Distribution Channel

Direct Sales

Distributors

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