

Carbon Capture, Utilization, and Storage (CCUS) Global Market 2025-2045

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Abstracts

As the world intensifies its efforts to achieve net-zero emissions, CCUS technologies are emerging as critical solutions for reducing emissions across essential hard-to-abate sectors. Carbon capture, utilization, and storage (CCUS) refers to technologies that capture CO₂ emissions and use or store them, leading to permanent sequestration. CCUS technologies capture carbon dioxide emissions from large power sources, including power generation or industrial facilities that use either fossil fuels or biomass for fuel. CO₂ can also be captured directly from the atmosphere. If not utilized onsite, captured CO₂ is compressed and transported by pipeline, ship, rail or truck to be used in a range of applications, or injected into deep geological formations (including depleted oil and gas reservoirs or saline formations) which trap the CO₂ for permanent storage.

Carbon Capture, Utilization, and Storage (CCUS) Global Market 2025-2045 offers an in-depth analysis offers valuable insights for stakeholders in the energy, industrial, and environmental sectors, as well as policymakers, investors, and researchers seeking to understand the transformative potential of CCUS in the global transition to a low-carbon economy. Report contents include:

Analysis of market trends for integrated CCUS solutions, the rise of direct air capture technologies, and the growing interest in CO₂ utilization for value-added products.

In-depth examination of key CCUS technologies, their current state of development, and future innovations:

Carbon Capture:

Post-combustion capture

Pre-combustion capture

Oxy-fuel combustion

Direct air capture (DAC)

Emerging capture technologies (e.g., membrane-based, cryogenic)

Carbon Utilization:

CO₂-derived fuels and chemicals

Building materials and concrete curing

Enhanced oil recovery (EOR)

Biological utilization (e.g., algae cultivation)

Mineralization processes

Carbon Storage:

Geological sequestration in saline aquifers

Depleted oil and gas reservoirs

Enhanced oil recovery (EOR) with storage

Mineral carbonation

Ocean storage (potential future applications)

Technology readiness levels (TRLs) of various CCUS approaches, highlighting areas of rapid advancement and identifying potential game-changers in the industry.

Global CCUS capacity additions by technology and region

CO2 capture volumes by source (power generation, industry, direct air capture)

Utilization volumes by application (fuels, chemicals, materials, EOR)

Storage volumes by type (geological, mineralization, other)

Market size and revenue projections for key CCUS segments

Investment trends and capital expenditure forecasts

Comprehensive overview of the CCUS industry value chain, from technology providers and equipment manufacturers to project developers and end-users.

Detailed profiles of over 300 companies across the CCUS value chain. Companies profiled include Again, Airhive, Aker Carbon Capture, AspiraDAC, Capsol Technologies, Captura, Carbofex Oy, Carbon Blue, CarbonCapture, CarbonFree, Charm Industrial, Climeworks, Exxon Mobil, Graphyte, Holocene, ION Clean Energy, MCI Carbon, Mission Zero, Neustark, Noya, Octavia Carbon, Removr, Sirona Technologies, and Storegga.

Analysis of key players' strategies, market positioning, and competitive advantages

Assessment of partnerships, mergers, and acquisitions shaping the industry

Evaluation of emerging start-ups and innovative technology providers

Regional Analysis including current and planned CCUS projects, regulatory frameworks, investment climates, and growth opportunities.

Policy and Regulatory Landscape

Analysis of global, regional, and national climate policies impacting CCUS

Overview of carbon pricing mechanisms and their effect on CCUS economics

Examination of incentives, tax credits, and support schemes for CCUS projects

Assessment of regulatory frameworks for CO₂ transport and storage

Projections of future policy developments and their market implications

Detailed cost breakdowns for capture, transport, utilization, and storage

Analysis of cost reduction trends and projections

Comparison of CCUS costs across different applications and technologies

Assessment of revenue streams and business models for CCUS projects

Evaluation of the role of carbon markets in CCUS economics

Challenges and Opportunities including:

- High capital and operational costs
- Technological barriers and scale-up issues
- Public perception and social acceptance
- Regulatory uncertainty and policy risks
- Infrastructure development needs

Emerging opportunities, such as:

- Integration with hydrogen production for blue hydrogen
- Negative emissions technologies (NETs) like BECCS and DACCS
- Development of CCUS hubs and clusters
- Novel CO₂ utilization pathways in high-value products
- Potential for CCUS in hard-to-abate sectors

Future Outlook and Scenarios including

Pace of technological innovation

Strength of climate policies and carbon pricing

Public acceptance and support for CCUS

Integration with other clean energy technologies

Global economic trends and energy market dynamics

This comprehensive market report is an essential resource for:

Energy and industrial companies exploring CCUS opportunities

Technology providers and equipment manufacturers in the CCUS space

Project developers and investors in clean energy and climate solutions

Policymakers and regulators shaping climate and energy policies

Research institutions and academics studying carbon management strategies

Environmental organizations and think tanks focused on climate change mitigation

Financial institutions and analysts assessing the CCUS market potential

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