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# Global Direct Air Capture (DAC or DACCS) Market Growth 2026-2032

https://marketpublishers.com/r/GCD845EEF7F0EN.html
Date: April 2026
Pages: 97
Price: US$ 3,660.00 (Single User License)
ID: GCD845EEF7F0EN

## Abstracts

The global Direct Air Capture (DAC or DACCS) market size is predicted to grow from US$ million in 2025 to US$ million in 2032; it is expected to grow at a CAGR of %from 2026 to 2032.

The global Direct Air Capture (DAC or DACCS) market is entering a phase of accelerated industrialization and capital deployment. Global installed capture capacity is projected to expand from 47.08 K MT in 2025 to 940 million MT by 2050, representing a CAGR of 36.16% during 2026–2050.

At present, the cost of Direct Air Capture (DAC) remains relatively high, typically ranging between USD 400–1000 per ton of CO? captured, depending on technology pathway, energy pricing, plant scale, and financing structure. Industry participants are actively pursuing cost-reduction strategies through technological optimization, sorbent material improvements, modular manufacturing, process integration, and renewable energy coupling. As commercial deployment expands and large-scale facilities move from pilot to industrial scale, learning curve effects and supply chain standardization are expected to drive significant efficiency gains. The long-term industry objective is to reduce DAC capture costs to approximately USD 150 per ton by 2050. Achieving this target would materially enhance project bankability, accelerate large-scale carbon removal deployment, and position DAC as a structurally competitive solution within global net-zero transition pathways.

Direct Air Capture (DAC or DACCS, Direct Air Carbon Capture and Storage) refers to an engineered process and integrated equipment system designed to extract carbon dioxide (CO?) directly from ambient atmospheric air. DAC systems draw large volumes of air through chemical or physical capture media, including liquid solvents or solid

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sorbents, which selectively bind CO? molecules. The captured CO? is then released in a concentrated stream through regeneration processes, enabling subsequent compression, transport, and either permanent geological sequestration or industrial utilization. As a negative emissions technology, DAC plays a critical role in carbon removal strategies by reducing existing atmospheric CO? concentrations and supporting net-zero and carbon neutrality objectives.

Upstream, DAC relies on suppliers of sorbent materials, chemical reagents, fans, heat exchangers, compressors, and control systems. Midstream, equipment manufacturers integrate capture modules, air contactors, regeneration units, and purification systems into modular or fixed installations. Downstream, the captured CO? is sent to geological storage (DAC+CCS) or converted for use in fuels, chemicals, building materials, or food and beverage applications, making DAC a key technology in long-term carbon removal and climate mitigation strategies.

From a product technology perspective, the market is primarily structured around Physical Absorption in Liquid Media and Adsorption on Solid Media. In 2025, Adsorption on Solid Media dominates the global landscape, accounting for approximately 98% of total installed capacity. This dominance is driven by the modular architecture, scalability, lower water dependency, and faster deployment cycles associated with solid sorbent systems, which have been widely adopted by early commercial DAC operators. However, the technology balance is expected to shift significantly in 2026. Occidental Petroleum (Oxy), through Carbon Engineering, is preparing to commission a 500,000-ton-per-year Physical Absorption in Liquid Media facility, a deployment scale that materially alters the capacity distribution across technologies. As a result, liquid-based systems are projected to gain technological leadership by capacity market share in 2026, marking a structural inflection point in the global DAC market.

From an application perspective, DAC deployment is concentrated across Food and Beverage, Greenhouse, and Energy, Fuel, etc. segments. Among these, Energy, Fuel, etc. is the dominant demand driver, accounting for approximately 80% of global DAC carbon capture capacity in 2025. This segment includes synthetic fuels, carbon-neutral hydrocarbons, geological sequestration, and industrial carbon utilization pathways, all of which require large-scale, durable carbon removal volumes. Food and Beverage and Greenhouse applications represent smaller but commercially stable niches, primarily utilizing high-purity CO? for carbonation and controlled-environment agriculture. The strong weighting toward Energy, Fuel, etc. underscores the alignment of DAC with energy transition strategies rather than solely specialty CO? supply markets.

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The competitive landscape remains highly concentrated and capital intensive. Leading global participants include Climeworks, Global Thermostat, Heirloom, Octavia Carbon, Avnos, Mission Zero Technologies, and Carbon Engineering. The top five companies collectively account for approximately 98% of total global capacity in 2025. This concentration reflects high technological barriers, significant capital expenditure requirements, long development cycles, and the early-stage clustering of commercial projects among a limited number of technology developers.

Market driving forces are rooted in tightening climate policy frameworks, the rapid expansion of voluntary and compliance carbon markets, and increasing corporate net-zero commitments that require durable carbon removal solutions beyond emission avoidance. Technological learning curves, engineering standardization, and modular manufacturing are progressively reducing unit capture costs, thereby improving project bankability. Government incentive programs, including tax credits, grants, and carbon contracts for difference, are further enhancing investment visibility. Additionally, growing integration between DAC facilities and renewable energy infrastructure supports long-term decarbonized energy ecosystems, reinforcing the strategic relevance of DAC equipment within future carbon management systems.

Market restraints remain material despite strong growth expectations. DAC systems are capital intensive, with high upfront investment requirements and long payback periods that depend heavily on carbon pricing mechanisms and policy certainty. Energy consumption intensity remains a critical cost variable, particularly in regions with volatile electricity prices. Water usage considerations for certain technology pathways may constrain deployment in arid geographies. Infrastructure readiness for CO? transport and permanent storage is uneven across regions, creating bottlenecks in full value chain development. Furthermore, the highly concentrated competitive structure and limited number of bankable large-scale projects increase investment risk during the early commercialization phase.

LP Information, Inc. (LPI) ' newest research report, the “Direct Air Capture (DAC or DACCS) Industry Forecast” looks at past sales and reviews total world Direct Air Capture (DAC or DACCS) sales in 2025, providing a comprehensive analysis by region and market sector of projected Direct Air Capture (DAC or DACCS) sales for 2026 through 2032. With Direct Air Capture (DAC or DACCS) sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US$ millions of the world Direct Air Capture (DAC or DACCS) industry.

This Insight Report provides a comprehensive analysis of the global Direct Air Capture

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(DAC or DACCS) landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on Direct Air Capture (DAC or DACCS) portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global Direct Air Capture (DAC or DACCS) market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for Direct Air Capture (DAC or DACCS) and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global Direct Air Capture (DAC or DACCS).

This report presents a comprehensive overview, market shares, and growth opportunities of Direct Air Capture (DAC or DACCS) market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

Physical Absorption in Liquid Media

Adsorption on Solid Media

Segmentation by Business Model:

Carbon Utilization

Carbon Storage

Segmentation by Energy Input Perspective:

High-Temperature Regeneration

Low-Temperature Heat and Vacuum Regeneration (TVSA and VSA)

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Segmentation by Application:

- Food and Beverage
- Greenhouse
- Energy, Fuel, etc.

This report also splits the market by region:

- Americas
  - United States
  - Canada
  - Mexico
  - Brazil
- APAC
  - China
  - Japan
  - Korea
  - Southeast Asia
  - India
  - Australia
- Europe
  - Germany

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France

UK

Italy

Russia

Middle East & Africa

Egypt

South Africa

Israel

Turkey

GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

Oxy (Carbon Engineering)

ClimeWorks

Zero Carbon Systems (Global Thermostat)

Mission Zero Technologies

Heirloom

Avnos

Kawasaki Heavy Industries

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Octavia Carbon

Spiritus

Key Questions Addressed in this Report
What is the 10-year outlook for the global Direct Air Capture (DAC or DACCS) market?
What factors are driving Direct Air Capture (DAC or DACCS) market growth, globally and by region?
Which technologies are poised for the fastest growth by market and region?
How do Direct Air Capture (DAC or DACCS) market opportunities vary by end market size?
How does Direct Air Capture (DAC or DACCS) break out by Type, by Application?

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