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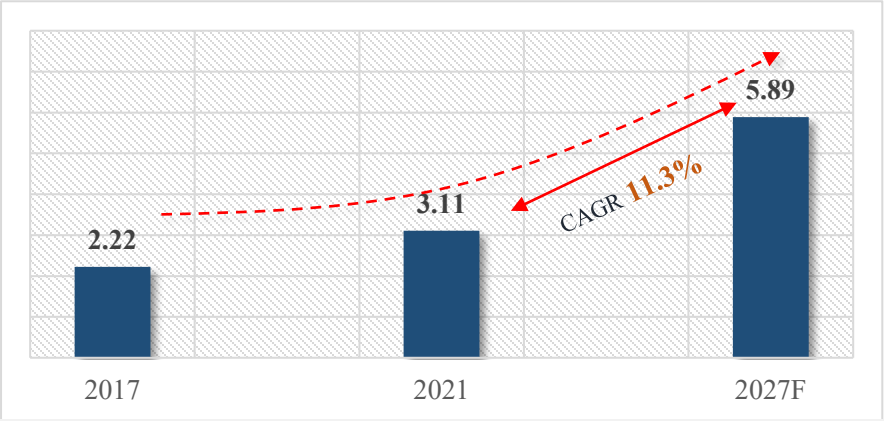
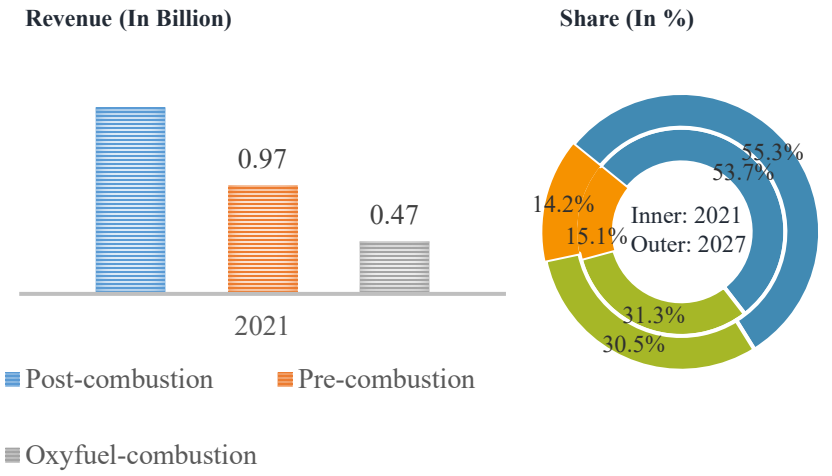
Global Carbon Capture, Utilization, and Storage Market

Introduction

Global Carbon Capture, Utilization, and Storage Market Revenue, (USD Billion), 2017 – 2027



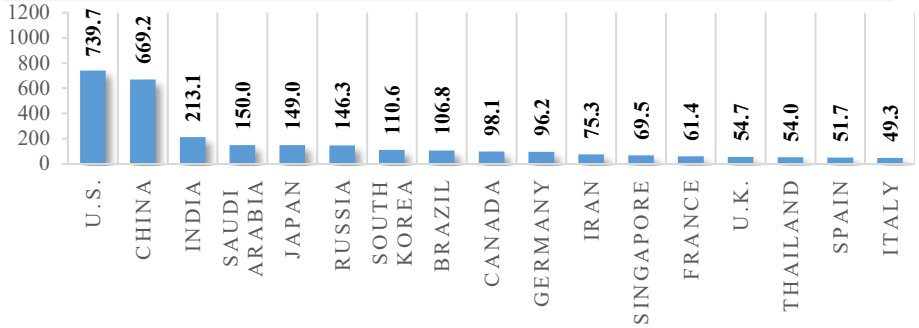
Global Carbon Capture, Utilization, and Storage Market, By Technology, 2017 – 2027



Source: BlueWeave Consulting

- The global carbon capture, utilization, and storage (CCUS) market reached USD 3.11 billion in 2021, and is further expected to reach USD 5.89 billion by 2027, growing at a CAGR of 11.3% from 2021-2027. Major factors for the growth can be witnessed as government policies to reduce carbon emission, and rising demand for CCUS in industrial sector to reduce the global warming and carbon emission.
- In terms of technology, post-combustion segment accounted for the largest market share. Increased energy generation, newly developed advanced amine systems, and heat integration systems are the main factors driving its demand.
- Based on service, capture segment held the majority share of over 70% in 2021, and would exhibit highest growth over the forecast period as well. On the contrary, utilization segment would register promising growth of 10.6% during 2021-2027.

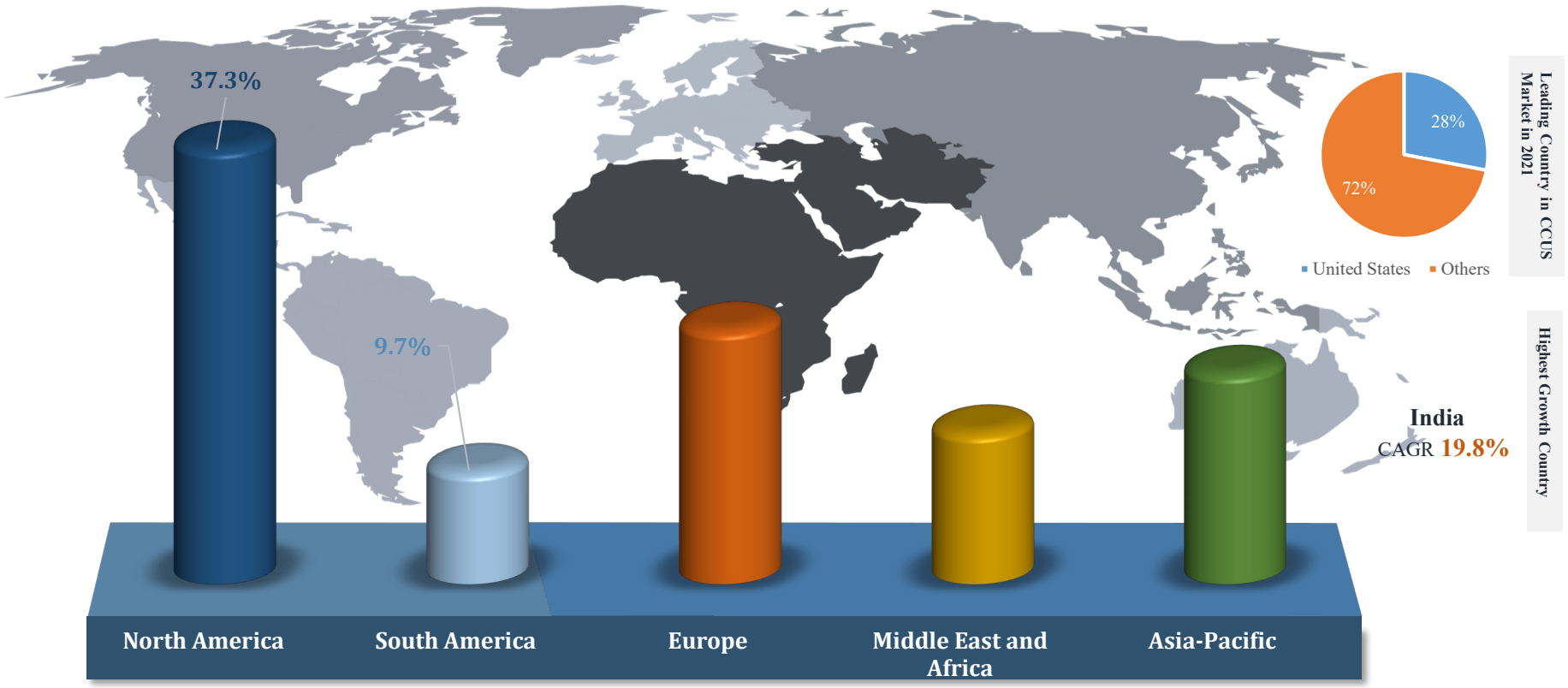
Global Oil Consumption, By Top Countries, in Million Tons (2020)



Source: BP Statistics

Opportunity Assessment by Region

Global Carbon Capture, Utilization, and Storage Market Share, By Region (2021)



Source: BlueWeave Consulting

- North America is expected to perform well through 2027 as well for the CCUS market driven by demand coming from United States, owing to growing demand for clean technology, accompanied by the growing use of CO2 in enhanced oil recovery practices. The country uses 75% of the global carbon capture capacity in enhanced oil recovery operations, which accounts for nearly 30 metric tons per annum.
- The country introduced the Furthering Capital Carbon Capture, Utilization, Technology, Underground storage, and Reduced Emissions (FUTURE Act) under the 45Q section, to provide incentives for capturing the carbon dioxide produced from industrial and power sources to be used in enhanced oil recovery.

Opportunity Assessment, By End User

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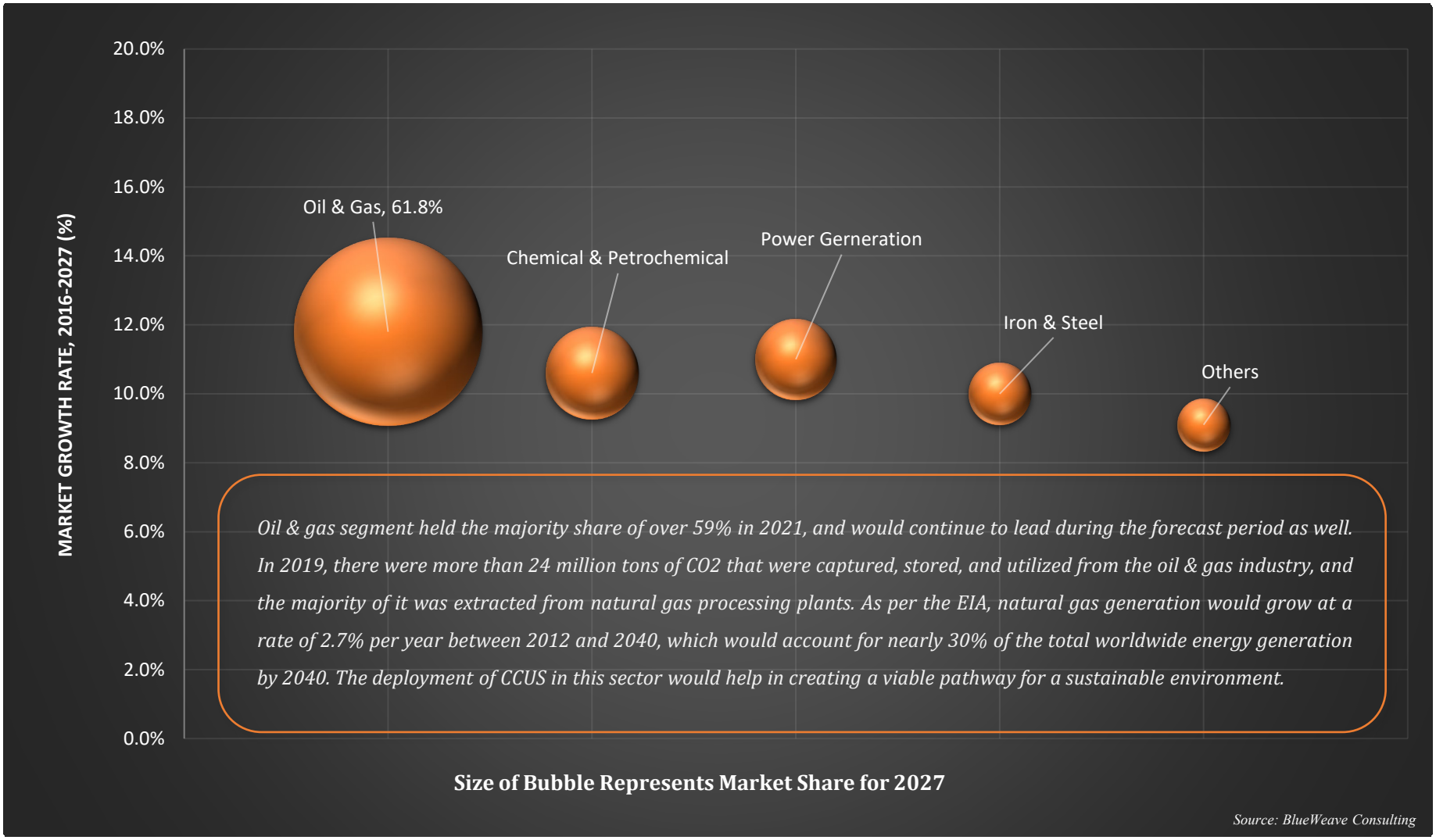
Global Carbon Capture, Utilization, and Storage Market Opportunity, By End User During 2021-2027

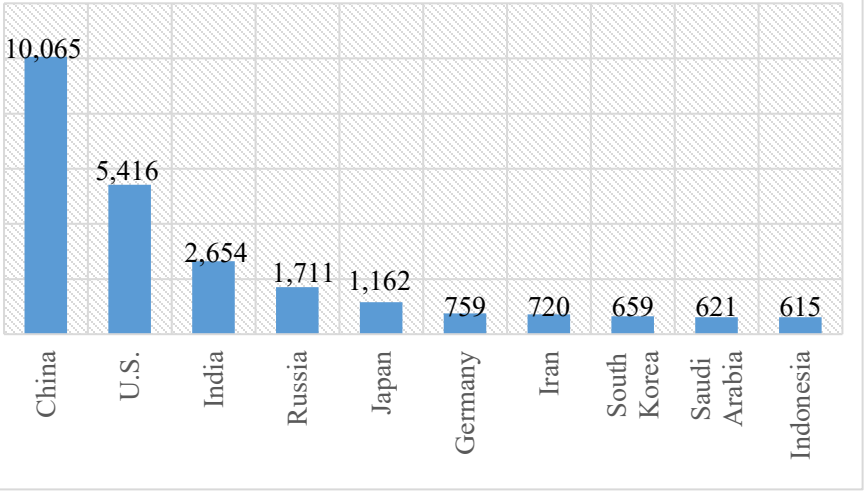


Source: BlueWeave Consulting

Market Dynamics

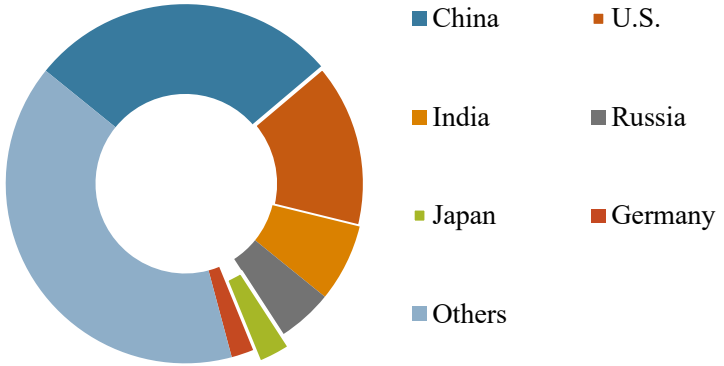
Market Drivers	Market Outlook
Government Policies to Reduce Carbon Emission	Increasing strict government rules and regulations for reducing carbon emissions in the industries have propelled market growth. For instance, the Environmental Protection Agency (EPA) proposed stringent laws to strengthen federal greenhouse gas (GHG) emissions standards for light trucks and passenger cars through Model Year (MY) 2026.
Rising Demand for CCUS in Industrial Sector to Reduce the Global Warming and Carbon Emission	Increasing carbon emissions and a surge in government support to build an environment-friendly atmosphere have created a massive demand for market growth. According to the Climate Trade Organization, more than 36,000 million tons of carbon dioxide (CO2) is being released into the Earth's atmosphere that contributes to climate change.
Market Restraints	**Market Outlook**
High Initial Costs Require for carbon Capture and Storage Hinder the Market Growth	The carbon storage cost of CO2 capture for large-scale coal-fired power plants ranges from USD 45 per tonne to USD 110 per tonne of carbon according to the International Energy Agency. Also, specifically, carbon capture costs can vary as per the source of CO2 production. According to the International Energy Agency, the carbon capture cost ranges from USD 15-25/t CO2 for industrial processes such as ethanol production, natural gas processing to USD 40-120/t CO2 for processes such as cement production and power generation plants.
Identification of Suitable Geological Structures to Store the Captured CO2	Another major restraining factor for this market is it requires a suitable geological structure and location for storing and capturing Carbon dioxide. The geographical location and high investment required for moving the storing the CO2 may hinder the market growth. For instance, the moving and storage costs of CO2 vary greatly depending on CO2 volumes, location of the plant, transportation distances, and storage conditions.
Market Opportunity	**Market Outlook**
Increasing Demand for CO2-EOR Techniques and Rising Adoption of Advanced Technologies for Carbon Capturing and Storing	The carbon capture and storage techniques are funded by several governments, research institutes, universities, and leading private companies to meet the global stringent carbon emission rules and regulations. For instance, in September 2017, the University of Houston's Researchers have begun a USD 1.4 million carbon dioxide captured project to demonstrate using petrochemical plants to boost oil recovery in a field in the Indian state of Assam, India. Further, in March 2020, the U.S. Geological Survey has developed advanced assessment method CO2-EOR techniques to estimate how much oil and gas is produced by injecting carbon dioxide into petroleum reservoirs.

Global Carbon Dioxide Emission, By Country, 2019 (Million Tons)



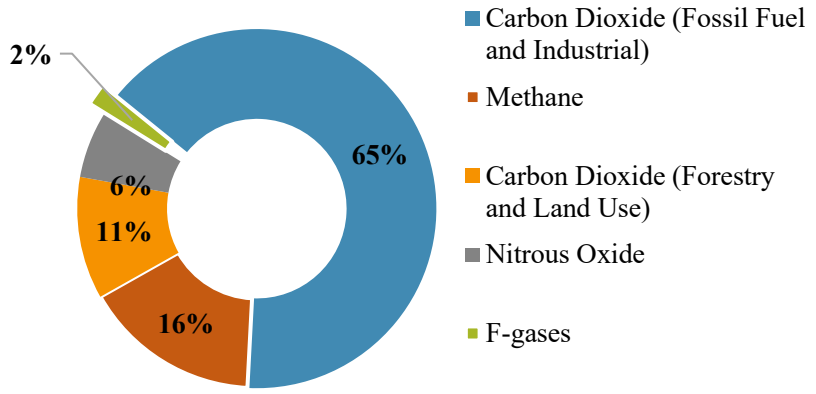
Source: Climate Trade Organization

Global Carbon Dioxide Gas Emission Share, By Country, 2019 (%)



Source: Union of Concerned Scientists and International Energy Agency

Global Green House Gas Emission Share, By Gases, 2019 (%)



Source: The United States Environmental Protection Agency

- Rising government funding and carbon capture project initiatives for carbon emission reduction around the globe have fueled the demand for carbon capture. In 2021, the Government of the Netherlands committed around Euro 2.1 billion in grants for four projects in support of a carbon capture and storage network.
- Also, in October 2021, the US Department of Energy (DOE) provided USD 20 million in funding to four projects working to accelerate the deployment of carbon capture, utilization, and storage (CCUS).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