+44 20 8123 2220
info@marketpublishers.com

Global Hydrogen-Based CCUS Technologies Supply, Demand and Key Producers, 2023-2029

https://marketpublishers.com/r/G9A711541D2CEN.html
Date: August 2023
Pages: 105
Price: US$ 4,480.00 (Single User License)
ID: G9A711541D2CEN

Abstracts

The global Hydrogen-Based CCUS Technologies market size is expected to reach $ 6295.9 million by 2029, rising at a market growth of 25.9% CAGR during the forecast period (2023-2029).

CCUS (Carbon Capture, Utilization and Storage) carbon capture, utilization and storage technology

surgery. It is a new development trend of CCS (Carbon Capture and Storage) technology, that is, to purify the carbon dioxide emitted in the production process, and then put it into the new production process, which can be recycled instead of simply stored. Compared with CCS, carbon dioxide can be resourced, which can generate economic benefits and is more practical.Challenges of CCUS Technology

At present, CCUS technology is still in the initial stage of research and development and demonstration, and is facing difficulties and problems in the aspects of economy, market, technology, environment and policy. There are still many obstacles and challenges to achieve large-scale development.

1 Economic aspects

The important contribution of CCUS technology lies in its irreplaceable ability to reduce carbon emissions, but the cost is too high. Firstly, the investment cost of the CCUS project is huge, and the investment amount is tens of millions or even hundreds of millions of yuan; secondly, the installation of carbon capture devices will generate additional operation and maintenance costs; finally, for carbon utilization and storage, the price of captured CO2 is too high. High, the price is very uneconomical for oil

production companies. With regard to the CCUS demonstration projects currently in operation in China, under such huge cost pressures, the corporate rate of return can only be maintained at 2% or below. If the emission reduction benefits cannot be realized, it will seriously affect the enthusiasm of enterprises to carry out CCUS demonstration projects.

2 Technical aspects

CCUS technology is a highly integrated collection, transportation, utilization and storage of various technologies, and it needs to promote the development of all links in an orderly and balanced manner. First of all, the introduction of the CCUS capture link will increase additional energy consumption. Under the current technical level, the primary energy consumption will increase by 10%~20% or even more, resulting in a great loss of efficiency. Secondly, because CO2 is chemically inert and thermally stable, a large amount of energy must be re-invested in order to effectively convert and utilize CO2, which limits the utilization of CO2 as a resource, and it is necessary to find a suitable catalyst system. There are risks of uncertainty in the geological exploration of the second geological utilization and storage link. The information support for CO2 geological storage is not enough, and the enterprise cannot make a comprehensive assessment of the stratum structure, storage potential, storage risk and detection plan, which increases the business risk of the enterprise. Finally, under the goal of carbon neutrality, CCUS technology needs to complete the cumulative emission reduction task of 17.5 to 31.5 billion tons of CO2. However, most of the current CCUS demonstration projects can capture CO2 from 10,000 to 100,000 tons, and there is a lack of large-scale, replicable A full-process integration demonstration project with obvious economic benefits. Therefore, research and development of low-cost, low-energy CCUS technology and large-scale full-process CCUS integration demonstration will promote the deployment and promotion of CCUS technology.

3 Market aspects

The development of the CCUS industry requires long-term and large capital investment. However, due to the high cost of CCUS emission reduction and the uncertainty of technology, companies are often unwilling to bear the risk of investing in CCUS research and development and demonstration alone. In addition, the global carbon market is in its infancy, there is no large-scale CO2 demand market, the carbon tax policy is not clear, and it is impossible to measure the emission reduction capacity of this part economically. Therefore, the foundation for the commercial development of CCUS projects is weak, and many Businesses and potential investors balk at it. On the

+44 20 8123 2220
info@marketpublishers.com

other hand, the CCUS industry chain covers almost all links of energy production and consumption, such as electric power, steel, cement, petroleum, chemical industry and other industries. At present, there are few CCUS full-process demonstration projects, and there is a lack of cross-industry and cross-departmental cooperation models. There is a problem of poor connection between CO2 capture projects and utilization and storage projects. Therefore, under the existing market environment and policy framework, how to reasonably solve the problem of cooperation and benefit distribution among multiple enterprises on the benefit chain will directly affect CCUS development process.

4 Environmental aspects

Due to the nature of CO2 itself, any leakage of CO2 in each link of CCUS technology will have an impact on the ecological environment. Under the current technical level, the environmental risks in the general capture and transportation links are small, and the main environmental risks come from the geological storage and utilization of CO2. From the perspective of geological time scale, due to complex unforeseen and uncontrollable geological movements (such as earthquakes) and the corrosiveness of CO2 to the formation, CO2 leaks and escapes to the surface, forming a catastrophic suffocation area and a sudden increase in The greenhouse effect causes a series of environmental problems such as soil, groundwater and atmosphere near the leakage area, and poses a fatal threat to animals, plants and human health. This also seriously restricts the understanding and acceptance of CCUS by the government and the public.

Prospect of CCUS Technology Application

The technical links of CCUS are closely connected and complement each other. The front-end carbon capture link provides CO2 for the utilization and storage link, the intermediate transportation link provides CO2 transportation guarantee, and the back-end CO2 utilization turns CO2 into treasure, forming a downstream related industrial chain with commercial value. , to create a huge CO2 demand market, to achieve a win-win situation of CO2 fixation and economic benefits, which in turn will promote the development of carbon capture projects.

Most of the current carbon capture projects are industrialized centralized capture, and there are demonstration projects for pre-combustion, post-combustion, and oxygen-enriched combustion technologies; while CO2 utilization and storage projects are mainly CO2-EOR, resource utilization projects are rare . CO2-EOR is a mature technology that has been applied by the oil industry for decades, and currently occupies a dominant

+44 20 8123 2220
info@marketpublishers.com

position in CCUS projects around the world, but its income is heavily dependent on oil prices, and its economic sustainability is poor. In terms of resource utilization of CO2, it has been reported in the literature that only 1.1 million tons of CO2 is industrially utilized and converted into chemicals every year, of which 90% is converted into urea, inorganic carbonate, etc., and very little is converted into other high-addition materials. valuable chemicals. At present, the vast majority of CO2 resource utilization industries have not yet achieved commercial application, and have not established relevant industrial chain clusters. Despite the high cost and high energy consumption of carbon capture projects, the disconnection between them and the carbon utilization stage makes it difficult to generate economic benefits, which has become the fundamental reason restricting the development of carbon capture projects. Therefore, while researching and developing low-cost, low-energy carbon capture technology, we must accelerate the layout of CO2 resource utilization, in order to accelerate the implementation, development and large-scale promotion of CCUS projects.

CO2 Utilization Industry Development Trend

1. Utilization of high value-added carbon-based new materials

CO2 conversion to manufacture high value-added carbon-based new materials (carbon nanotubes and graphene, etc.) will be part of an effective path to carbon neutrality such as coal power plants. It will provide a sustainable economic basis for overall carbon neutrality. Carbon nanomaterials have been widely used in lithium battery conductive pastes and conductive plastics, and can also be used in solar conductive silver pastes, anti-corrosion coatings, and thermal greases. At present, this technology has been successfully applied to industrial demonstration projects, with remarkable economic benefits. Due to the limited demand for high-tech materials, billions of tons of CO2 need to find another way out. One of the important directions of green chemistry research is to regard CO2, biomass, coal, oil, and natural gas as the five basic industrial raw materials, which are used to produce tens of thousands of daily-needed end products.

2. Chemical utilization

Incorporate CO2 into the industrial system, together with biomass materials, coal, oil and natural gas, as the five basic raw materials of industry, and build a new CO2 economic industrial chain, which is not only used to produce basic chemicals such as methanol and olefins, but also involves various intermediates Body and tens of thousands of end products (as shown in Figure 3). For example, Shanxi Clean Carbon Research Institute purifies CO2 in industrial flue gas, not only converting it into chemical

+44 20 8123 2220
info@marketpublishers.com

products such as carbonate, ethylene glycol, and methanol fuel, but also using supercritical CO2 to manufacture lightweight materials for aircraft and automobile interior parts, Energy-saving and environment-friendly products such as packaging materials. With technological progress and cost reduction, CO2 resource utilization is gradually promoted, and the chemical industry is expected to accelerate greening.

CCUS is an enabler of least-cost low-carbon hydrogen production. CCUS can remove CO2 from the atmosphere by combining it with bioenergy or direct air capture to balance emissions that are unavoidable or technically difficult to abate. Hydrogen technologies are technologies that relate to the production and use of hydrogen as a part hydrogen economy.

This report studies the global Hydrogen-Based CCUS Technologies demand, key companies, and key regions.

This report is a detailed and comprehensive analysis of the world market for Hydrogen-Based CCUS Technologies, and provides market size (US$ million) and Year-over-Year (YoY) growth, considering 2022 as the base year. This report explores demand trends and competition, as well as details the characteristics of Hydrogen-Based CCUS Technologies that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Hydrogen-Based CCUS Technologies total market, 2018-2029, (USD Million)

Global Hydrogen-Based CCUS Technologies total market by region & country, CAGR, 2018-2029, (USD Million)

U.S. VS China: Hydrogen-Based CCUS Technologies total market, key domestic companies and share, (USD Million)

Global Hydrogen-Based CCUS Technologies revenue by player and market share 2018-2023, (USD Million)

Global Hydrogen-Based CCUS Technologies total market by Type, CAGR, 2018-2029, (USD Million)

Global Hydrogen-Based CCUS Technologies total market by Application, CAGR, 2018-2029, (USD Million).

+44 20 8123 2220
info@marketpublishers.com

This reports profiles major players in the global Hydrogen-Based CCUS Technologies market based on the following parameters – company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Exxonmobil Corporation, Schlumberger, Linde AG, BASF, General Electric, Siemens, Honeywell UOP, Equinor and Aker Solutions, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals, COVID-19 and Russia-Ukraine War Influence.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Hydrogen-Based CCUS Technologies market.

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), by player, by regions, by Type, and by Application. Data is given for the years 2018-2029 by year with 2022 as the base year, 2023 as the estimate year, and 2024-2029 as the forecast year.

Global Hydrogen-Based CCUS Technologies Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

+44 20 8123 2220
info@marketpublishers.com

Global Hydrogen-Based CCUS Technologies Market, Segmentation by Type

- Carbon Capture and Storage (CCS)
- Carbon Capture and Utilization (CCU)
- Carbon Capture and Conversion (CCC)

Global Hydrogen-Based CCUS Technologies Market, Segmentation by Application

- Oil and Gas
- Power Generation
- Others

Companies Profiled:

- Exxonmobil Corporation
- Schlumberger
- Linde AG
- BASF
- General Electric
- Siemens
- Honeywell UOP
- Equinor
- Aker Solutions
- Shell

+44 20 8123 2220
info@marketpublishers.com

Fluor

Sinopec

Key Questions Answered

1. How big is the global Hydrogen-Based CCUS Technologies market?

2. What is the demand of the global Hydrogen-Based CCUS Technologies market?

3. What is the year over year growth of the global Hydrogen-Based CCUS Technologies market?

4. What is the total value of the global Hydrogen-Based CCUS Technologies market?

5. Who are the major players in the global Hydrogen-Based CCUS Technologies market?

6. What are the growth factors driving the market demand?

+44 20 8123 2220
info@marketpublishers.com

Contents

+44 20 8123 2220
info@marketpublishers.com

3 WORLD HYDROGEN-BASED CCUS TECHNOLOGIES COMPANIES COMPETITIVE ANALYSIS

4 UNITED STATES VS CHINA VS REST OF THE WORLD (BY HEADQUARTER LOCATION)

+44 20 8123 2220
info@marketpublishers.com

5 MARKET ANALYSIS BY TYPE

6 MARKET ANALYSIS BY APPLICATION

+44 20 8123 2220
info@marketpublishers.com

7 COMPANY PROFILES

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

8 INDUSTRY CHAIN ANALYSIS

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

List Of Tables

LIST OF TABLES

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

List Of Figures

LIST OF FIGURES

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Global Hydrogen-Based CCUS Technologies Supply, Demand and Key Producers, 2023-2029

Product link: https://marketpublishers.com/r/G9A711541D2CEN.html

Price: US$ 4,480.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/G9A711541D2CEN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at https://marketpublishers.com/docs/terms.html

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970

+44 20 8123 2220
info@marketpublishers.com