Carbon Capture: the missing link for decarbonising the world

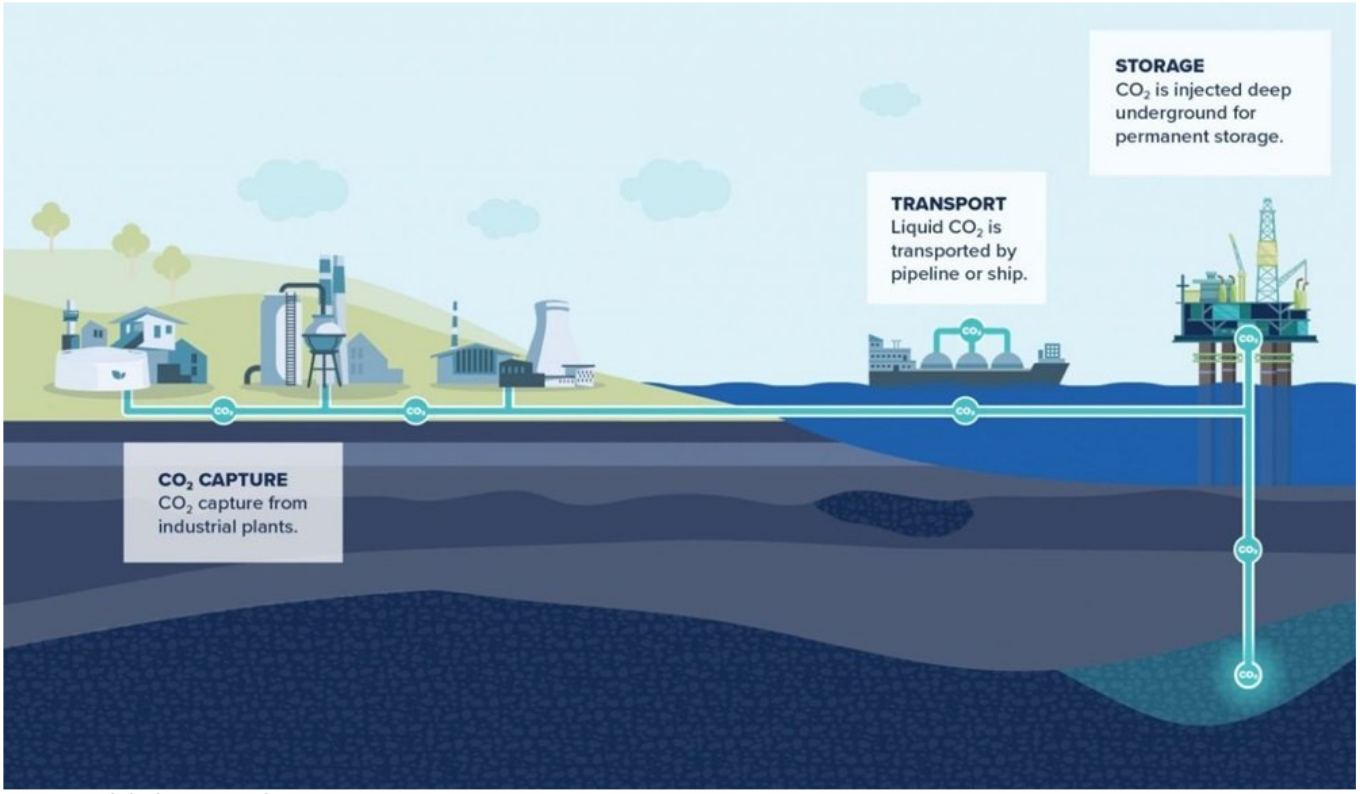
Published 26 February 2024

Mobeen Tahir
Director, Macroeconomics and Thematic Research

Key Takeaways

- Close to 300 million tonnes of CO_2 has already been safely and successfully injected underground.
- The number of CCS projects being proposed or under development is expected to reach over 300 million tonnes per annum by 2030, up from around 45.9 million tonnes in 2022[1].
- The CCS market, estimated at $3.28 billion in 2022, is projected to grow at a compound annual growth rate of 7.1% to 2030[2].
- Carbon capture and storage is a vital aid in helping develop a circular economy.

Carbon Capture and Storage (CCS) refers to the process of capturing carbon dioxide (CO_2) emissions and storing them safely so that they do not harm the environment. This term encapsulates technologies that capture emissions at the source as well as those that capture CO_2 from the atmosphere.



Source: Global CCS Institute, 2024.

According to the CCS Institute, CCS is already happening around the world using a wide range of technologies to capture emissions, depending on their source. The Institute states that there are currently 29 facilities, with a cumulative capacity of around 40 million tonnes per annum – the equivalent of taking nearly eight million cars off the road. Close to 300 million tonnes of CO_2 has already been safely and successfully injected underground.

WisdomTree Recycling Decarbonisation UCITS ETF (WRCY)

The WisdomTree Recycling Decarbonisation UCITS ETF (WRCY), built in partnership with experts TortoiseEcofin, is founded on two key pillars. The first pillar is waste to energy, which is the process of generating energy from waste such as household waste, animal manure, agriculture products and/or animal fats. This theme includes companies engaged in the production of renewable fuels, such as sustainable jet fuel, as well as ethanol and other biomass, like wood pellets. The second pillar is recycling. These companies are engaged in recycling business activities including traditional recycling activities like plastic recycling, where plastic is recycled into original materials such as polypropylene for re-use, and lithium-ion battery recycling, as well as companies engaged in carbon capture and sequestration.

WRCY is classified as SFDR Article 9[3].

The tailwinds for adoption

Firstly, heavy industries that are difficult to decarbonise are embracing carbon capture. Cement manufacturing is one such example. Heidelberg Cement, a global cement manufacturer, is developing eight carbon capture initiatives around the world. Steel manufacturer, ArcelorMittal, has also integrated carbon capture within its multi-billion-dollar investment program. The production of blue hydrogen (made from natural gas and emissions subjected to CCS) also benefits from the technology. Aramco, the world's largest oil company, is employing this tool to produce sustainable hydrogen[4].

Secondly, policy support is also helping with CCS adoption. The Inflation Reduction Act includes tax credits of $85/tonne for CCS projects that reduce emissions from fossil fuels[5]. In Europe, European Union Allowances (EUAs), which put a price on the emissions of entities regulated within the Emissions Trading Scheme (ETS), are meant to incentivise the adoption of clean technologies. The higher the price of emitting CO_2, the more companies will be incentivised to turn towards solutions like renewable energy and CCS.

We know that no single solution can help us fully decarbonise the world. Renewable energy, electrification, recycling, etc must all play a role – and so must carbon capture. Fortunately, the adoption of this technology is on the rise. The number of CCS projects being proposed or under development is expected to reach over 300 million tonnes per annum by 2030, up from around 45.9 million tonnes in 2022[6]. The CCS market, estimated at $3.28 billion in 2022, is projected to grow at a compound annual growth rate of 7.1% to 2030[7].

Companies at the forefront

As the space develops, business models are also evolving. Aker has established itself as a leading player in the industry offering a carbon capture service as a one-stop solution. Instead of businesses incurring large capital expenditure to reduce or eliminate their emissions, they can employ Aker and pay per tonne of CO_2 captured, letting Aker take care of the full value chain of CCS, from capture through to transportation and storage.

NET Power is another player in the industry, which produces energy by combusting natural gas and either injecting the CO_2 back into the process for energy generation or capturing and storing it safely. The company claims that its technology captures over 97% of CO_2 emissions from power generation.

LanzaTech presents yet another business model while still operating in the same industry. The company takes it a step further by transforming the captured carbon into something valuable and useful at scale. This helps reduce the need for fossil carbon in consumer goods and sustainable aviation fuels.

The circular economy

Carbon capture and storage is a vital aid in helping develop a circular economy. Our traditional model of utilising natural resources has historically been linear: take, make, and dispose. A circular model, in contrast, is one in which we take, make, and recycle. And when recycling is not possible, a circular model aims to minimise the detrimental impact on the environment, like storing carbon safely underground.

Sources

[1] International Energy Agency, sourced from World Economic Forum, October 2023.

[2] Grand View Research, 2023.

[3] Sustainable Finance Disclosure Regulation

[4] World Economic Forum, October 2022.

[5] US Inflation Reduction Act, reported by the FT November 2023.

[6] International Energy Agency, sourced from World Economic Forum, October 2023.

[7] Grand View Research, 2023.

Important Risks Related to this Article

IMPORTANT INFORMATION

Marketing communications issued in the European Economic Area ("EEA"): This document has been issued and approved by WisdomTree Ireland Limited, which is authorised and regulated by the Central Bank of Ireland.

Marketing communications issued in jurisdictions outside of the EEA: This document has been issued and approved by WisdomTree UK Limited, which is authorised and regulated by the United Kingdom Financial Conduct Authority.

WisdomTree Ireland Limited and WisdomTree UK Limited are each referred to as "WisdomTree" (as applicable). Our Conflicts of Interest Policy and Inventory are available on request.

For professional clients only. Past performance is not a reliable indicator of future performance. Any historical performance included in this document may be based on back testing. Back testing is the process of evaluating an investment strategy by applying it to historical data to simulate what the performance of such strategy would have been. Back tested performance is purely hypothetical and is provided in this document solely for informational purposes. Back tested data does not represent actual performance and should not be interpreted as an indication of actual or future performance. The value of any investment may be affected by exchange rate movements. Any decision to invest should be based on the information contained in the appropriate prospectus and affer seeking independent investment, tax and legal advice. These products may not be available in your market or suitable for you. The content of this document does not constitute investment advice nor an offer for sale nor a solicitation of an offer to buy any product or make any investment.

An investment in exchange-traded products ("ETPs") is dependent on the performance of the underlying index, less costs, but it is not expected to match that performance precisely. ETPs involve numerous risks including among others, general market risks relating to the relevant underlying index, credit risks on the provider of index swaps utilised in the ETP, exchange rate risks, interest rate risks, inflationary risks, liquidity risks and legal and regulatory risks.

The information contained in this document is not, and under no circumstances is to be construed as, an advertisement or any other step in furtherance of a public offering of shares in the United States or any province or territory thereof, where none of the issuers or their products are authorised or registered for distribution and where no prospectus of any of the issuers has been filed with any securities commission or regulatory authority. No document or information in this document should be taken, transmitted or distributed (directly or indirectly) into the United States. None of the issuers, nor any securities issued by them, have been or will be registered under the United States Securities Act of 1933 or the Investment Company Act of 1940 or qualified under any applicable state securities statutes.

This document may contain independent market commentary prepared by WisdomTree based on publicly available information. Although WisdomTree endeavours to ensure the accuracy of the content in this

document, WisdomTree does not warrant or guarantee its accuracy or correctness. Any third party data providers used to source the information in this document make no warranties or representation of any kind relating to such data. Where WisdomTree has expressed its own opinions related to product or market activity, these views may change. Neither WisdomTree, nor any affiliate, nor any of their respective officers, directors, partners, or employees accepts any liability whatsoever for any direct or consequential loss arising from any use of this document or its contents.

This document may contain forward looking statements including statements regarding our belief or current expectations with regards to the performance of certain assets classes and/or sectors. Forward looking statements are subject to certain risks, uncertainties and assumptions. There can be no assurance that such statements will be accurate and actual results could differ materially from those anticipated in such statements. WisdomTree strongly recommends that you do not place undue reliance on these forward-looking statements.

WisdomTree Issuer ICAV

The products discussed in this document are issued by WisdomTree Issuer ICAV (“WT Issuer”). WT Issuer is an umbrella investment company with variable capital having segregated liability between its funds organised under the laws of Ireland as an Irish Collective Asset-management Vehicle and authorised by the Central Bank of Ireland (“CBI”). WT Issuer is organised as

an Undertaking for Collective Investment in Transferable Securities (“UCITS”) under the laws of Ireland and shall issue a separate class of shares (''Shares”) representing each fund. Investors should read the prospectus of WT Issuer (“WT Prospectus”) before investing and should refer to the section of the WT Prospectus entitled 'Risk Factors' for further details of risks associated with an investment in the Shares.

WisdomTree Recycling Decarbonisation UCITS ETF

The Tortoise Recycling Decarbonization UCITS IndexSM (the “Index”) is the exclusive property of TIS Advisors, LLC. TIS Advisors, LLC makes no express or implied representation, guarantee or assurance with regard to (a) the advisability in investing in the Fund; and/or (b) the results obtained or to be obtained by any person or entity from the use of the Fund. The Index is calculated by Solactive AG (“Solactive”). The financial instruments that are based on the Index are not sponsored, endorsed, promoted or sold by Solactive in any way, and Solactive makes no express or implied representation, guarantee or **assurance with regard to:** (a) the advisability in investing in the financial instruments; (b) the quality, accuracy and/or completeness of the Index or the calculations thereof; and/or (c) the results obtained or to be obtained by any person or entity from the use of the Index. It is not possible to invest directly in an index.

Notice to Investors in Switzerland – Qualified Investors

This document constitutes an advertisement of the financial product(s) mentioned herein.

The prospectus and the key investor information documents (KIID) are available from WisdomTree's website: **https:** //www.wisdomtree.eu/en-ch/resource-library/prospectus-and-regulatory-reports

Some of the sub-funds referred to in this document may not been registered with the Swiss Financial Market Supervisory Authority (“FINMA”). In Switzerland, such sub-funds that have not been registered with FINMA shall be distributed exclusively to qualified investors, as defined in the Swiss Federal Act on Collective Investment Schemes or its implementing ordinance (each, as amended from time to time). The representative and paying agent of the sub-funds in Switzerland is Société Générale Paris, Zurich Branch, Talacker 50, PO Box 5070, 8021 Zurich, Switzerland. The prospectus, the key investor information documents (KIID), the articles of association and the annual and semi-annual reports of the sub-funds are available free of charge from the representative and paying agent. As regards distribution in Switzerland, the place of jurisdiction and performance is at the registered seat of the representative and paying agent.

For Investors in France

The information in this document is intended exclusively for professional investors (as defined under the MiFID) investing for their own account and this material may not in any way be distributed to the public. The distribution of the Prospectus and the offering, sale and delivery of Shares in other jurisdictions may be restricted by law. WT Issuer is a UCITS governed by Irish legislation, and approved by the Financial Regulatory as UCITS compliant with European regulations although may not have to comply with the same rules as those applicable to a similar product approved in France. The Fund has been registered for marketing in France by the Financial Markets Authority (Autorité des Marchés Financiers) and may be distributed to investors in France. Copies of all documents (i.e. the Prospectus, the Key Investor Information Document, any supplements or addenda thereto, the latest annual reports and the memorandum of incorporation and articles of association) are available in France, free of charge at the French centralizing agent, Societe Generale at 29, Boulevard Haussmann, 75009, Paris, France. Any subscription for Shares of the Fund will be made on the basis of the terms of the prospectus and any supplements or addenda thereto.

For Investors in Malta

This document does not constitute or form part of any offer or invitation to the public to subscribe for or purchase shares in the Fund and shall not be construed as such and no person other than the person to whom this document has been addressed or delivered shall be eligible to subscribe for or purchase shares in the Fund. Shares in the Fund will not in any event be marketed to the public in Malta without the prior authorisation of the Maltese Financial Services Authority.

For Investors in Monaco

This communication is only intended for duly registered banks and/or licensed portfolio management companies in Monaco. This communication must not be sent to the public in Monaco