



U.S. DEPARTMENT OF ENERGY



NATIONAL ENERGY TECHNOLOGY LABORATORY

CTSN CARBON TRANSPORT and STORAGE NEWSLETTER

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This newsletter was compiled by the National Energy Technology Laboratory to provide information on recent activities and publications related to carbon transport and storage. It covers domestic, international, and public and private sector news in the following areas:

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DOE/FECM/NETL HIGHLIGHTS



NETL's EDX Releases Catalog of U.S. Prospective Subsurface Storage Reservoir Sealing Formations

Researchers at the National Energy Technology Laboratory (NETL) recently published a new dataset, the *Catalog of U.S. Prospective Subsurface Storage Reservoir Sealing Formations*, that aggregates prospective seal units for potential storage resources within the United States for geologic carbon storage in both onshore and offshore basins. The catalog lists prospective seals by unit name, along with associated data and resources that are available—including lithology, position concerning the reservoir (primary, secondary, intraformational, etc.), and age (geologic period)—for prospective domestic geologic storage resources. The catalog is the result of a significant effort to aggregate disparate data resources into a single dataset that guides users to understand what prospective seal units exist in deep sedimentary basins. The dataset can be explored further on NETL's *Energy Data eXchange® (EDX)* and *EDX disCO₂ver*—NETL's carbon storage-centric virtual data collaboration and curation platform. EDX is the U.S. Department of Energy (DOE) Office of Fossil Energy and Carbon Management's (FECM) virtual library and data laboratory built to find, connect, curate, use, and re-use data to advance fossil energy and environmental research and development (R&D).

From NETL. April 2024.

ANNOUNCEMENTS



DOE Announces Funding to Transform Industrial Sector, Reduce Emissions

DOE announced funding for 33 projects across more than 20 states to decarbonize energy-intensive industries, reduce industrial greenhouse gas (GHG) emissions, support good-paying union jobs, revitalize industrial communities, and strengthen the nation's manufacturing competitiveness. Funded by the Bipartisan Infrastructure Law and Inflation Reduction Act, the projects will focus on the highest-emitting industries where decarbonization technologies will have the greatest impact. Together, the projects are expected to reduce the equivalent of more than 14 million metric tons of CO₂ emissions each year.

From *energy.gov*. March 2024.



RECS 2024 Accepting Applications



The Research Experience in Carbon Sequestration (RECS) 2024 Program is accepting applications from graduate students and early career professionals who are interested in carbon capture, utilization, and storage (CCUS). RECS 2024 will include interactive content on a range of CCUS topics, incorporating site tours at a power plant, coal mine, carbon capture facility, direct air capture (DAC) facility, and injection wellhead; geology field exercises, live lectures,

discussion sessions, and group projects; and access to CCUS experts from DOE and its national laboratories, the energy industry, CCUS project developers, and academia. Supported by FECM and NETL, RECS 2024 will be held July 21–30, 2024, in Colorado and Wyoming. Applications are due by May 15, 2024.

From *energy.gov*. April 2024.

DOE Announces Demonstrate Deploy Decarbonize 2024

DOE announced that Demonstrate Deploy Decarbonize 2024 (Deploy24) will take place in Washington, DC, on December 4 and 5, 2024. Hosted by DOE, Deploy24 is the second annual gathering of decision-makers from across the private and public sectors—including senior industry executives, capital allocators, community leaders, and others across the clean energy supply chain—all focused on accelerating the deployment of critical energy and decarbonization technologies and supply chains in the United States.

From *energy.gov*. March 2024.



NETL Chairing Carbon Transport and Storage Session at 2024 AIChE Annual Meeting

NETL is chairing a session on carbon transport and storage at the 2024 American Institute of Chemical Engineers (AIChE) Annual Meeting (October 27–31, 2024, in San Diego, California). The session, titled “Engineering Geologic Carbon Dioxide Storage Systems,” will focus on carbon capture and storage (CCS) R&D for permanent, efficient, and cost-effective storage of carbon dioxide (CO₂).

Low-Carbon CCU Methanol Receives Certification

The International Sustainability and Carbon Certification (ISCC) has certified Celanese Corporation's low-carbon carbon capture and utilization (CCU) methanol under the ISCC Carbon Footprint Certification system. The newly certified low-carbon CCU methanol demonstrates a greater than 70% reduction in carbon footprint relative to a global average benchmark for fossil-based methanol production, as included in European Union legislation.

From *Celanese News Release*. March 2024.

College Class Begins 10-Year Carbon Storage Study

Arizona State University's Polytechnic campus began a 10-year study on carbon storage in arid environments, offering students hands-on research experience to help them understand the role of biodiversity in carbon storage.

From *The State Press*. March 2024.

University to Drill CCUS Research Well on Campus

Louisiana State University's (LSU) College of Engineering will drill a well on its campus to research CCUS. The well will be added to LSU's Petroleum Engineering Research, Training, and Testing Lab—a hands-on research facility comprising two industrial-scale research wells, additional storage wells, and surface facilities. The facility will be funded through a combination of federal and state funds, with oil and gas industry partners supplying most of the equipment.

From *Biz New Orleans*. March 2024.



SLB, Norway's Aker Carbon Capture to Combine Carbon Capture Businesses

U.S. oilfield services provider SLB (formerly Schlumberger) and Norway's Aker Carbon Capture are combining their carbon capture businesses to accelerate the deployment and scale of CCUS solutions, according to company officials.

From *Reuters*. March 2024.



PROJECT AND BUSINESS DEVELOPMENTS

Provisional Offshore Contracts Awarded for North Sea Teesside CO₂ Development

The Northern Endurance Partnership and Net Zero Teesside Power joint venture awarded Saipem a letter of intent for offshore construction operations in the southern UK North Sea. The two projects involve the development of CO₂ offshore transportation and storage facilities for the East Coast Cluster in Teesside, northeast England.

From *Offshore Magazine*. March 2024.

Companies to Collaborate on Cost-Effective CCUS in Cement Industry

ABB and Captimise are extending their collaboration to drive the adoption of cost-effective CCUS technologies in the cement industry. The two companies will develop screening, feasibility, and front-end engineering design (FEED) studies. The initiative will support cement producers in identifying suitable and cost-efficient carbon capture technologies covering their full carbon chain, from capture to storage and utilization.

From *Carbon Herald*. March 2024.



TotalEnergies to Acquire CCS Business

French firm TotalEnergies agreed to acquire Talos Energy Inc.'s entire CCS business, Talos Low Carbon Solutions LLC. The sale includes three projects along the U.S. Gulf Coast—Bayou Bend CCS LLC (a 25% share), Harvest Bend CCS LLC in Louisiana (a 65% operated interest), and Coastal Bend CCS LLC in Texas (a 50% interest). The Bayou Bend project is a carbon transportation and storage solution for industrial emitters located in the Houston Ship Channel and Beaumont–Port Arthur region on the Texas Gulf Coast (which lies near TotalEnergies' Port Arthur refinery and petrochemicals assets in La Porte).

From *Oil & Gas Journal*. March 2024.

MOU to Evaluate Feasibility of CCS Value Chain

JX Nippon Oil & Gas Exploration Corporation and Chevron New Energies signed a memorandum of understanding (MOU) that provides a framework to evaluate the export of CO₂ from Japan to CCS projects located in Australia and other countries in the Asia-Pacific region. The main objective of the MOU is to evaluate the feasibility of the CCS value chain, including the capture of CO₂ released from industries located in Japan, and transportation by ship from Japan to Chevron's GHG storage portfolio in Australia. The collaboration will also explore the opportunity to develop suitable transboundary policies and the potential development of CO₂ storage sites in other countries in the Asia-Pacific region.

From *Chevron News Release*. March 2024.

MOU to Explore CO₂ Transport, Storage Options

Drax Group, Viking CCS (a Humber-based CO₂ transportation and storage network led by Harbour Energy), and BP signed an MOU to assess options to transport and store CO₂ in the Humber region. The companies will work together on an early pipeline study to explore options that could connect Drax Power Station to the depleted Viking gas fields in the southern North Sea. Once operational, and subject to a final investment decision, the Viking CCS cluster could capture and store up to 10 million metric tons of CO₂ per year by 2030 and up to 15 million metric tons by 2035.

From *Biomass Magazine*. March 2024.

Liverpool Bay CO₂ Storage Pipeline Wins Planning Consent

The UK government greenlit plans for a pipeline to transport CO₂ captured from heavy industry in North West England and Wales to be stored under the seabed in Liverpool Bay. The HyNet CO₂ pipeline was granted a Development Consent Order by the Planning Inspectorate, allowing for the construction, operation, and maintenance of both new and repurposed gas pipelines and associated infrastructure in the region to transport the captured CO₂ for storage in Eni's depleted fossil gas reservoirs. Eni's transport and storage system at HyNet is expected to have enough capacity for 4.5 million metric tons of CO₂ per year in its first phase, with the potential for this to increase to up to 10 million metric tons per year after 2030.

From *BusinessGreen*. March 2024.

Capsol Signs Preliminary License for Swiss CCS Plant

Capsol Technologies signed a preliminary license agreement for the use of its CapsolEoP® carbon capture solution at KVA Linth's waste-to-energy plant in Switzerland. The plant will have a carbon capture potential of more than 120,000 metric tons of CO₂ per year. As part of the preliminary license agreement, Capsol will provide the carbon capture plant design to support KVA Linth in making its technology decision.

From *Carbon Capture Journal*. March 2024.

Pre-FEED Award Includes CO₂ Storage

Aker Carbon Capture was awarded a pre-FEED for Statkraft's Heimdal waste-to-energy plant. The pre-FEED covers CO₂ capture, compression, purification, liquefaction, and temporary storage of CO₂ at the Heimdal waste-to-energy plant. From Heimdal, the liquid CO₂ will be transported by truck to an export terminal with subsequent ship transport to permanent storage.

From *PR Newswire*. April 2024.



LEGISLATION AND POLICY



Bill to Promote, Expand CCS

A bill to expand the Colorado Energy and Carbon Management Commission's (ECMC) ability to regulate and promote CCS is being considered by the Colorado General Assembly. [HB24-1346](#) expands the authority of ECMC to regulate facilities that use equipment to capture significant quantities of CO₂ directly from the ambient air (DAC), as well as the underground storage of CO₂ in pore space (geologic storage operations).

From *JD Supra*. March 2024.

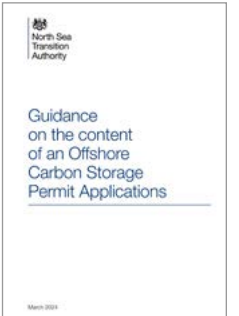


COLORADO
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Guidance to Aid North Sea Industry in Managing CO₂ Storage Sites

UK regulator North Sea Transition Authority (NSTA) published two sets of guidance expected to help the industry prepare for carbon storage injection. The [Guidance for Measurement of Carbon Dioxide for Carbon Storage Permit Applications](#) provides licensees with information on NSTA expectations regarding the proper measurement of CO₂ being injected into a storage site and suggestions on how that can be achieved. The [Guidance on the Content of an Offshore Carbon Storage Permit Application](#) provides clarity on determining the extent of a subsurface storage site and focuses licensees on the area they must manage to prevent/detect leakage.

From *Offshore Energy*. April 2024



EMISSIONS TRADING



RGGI States Release Auction Results



The states participating in the Regional Greenhouse Gas Initiative (RGGI) released the results of their 63rd auction of CO₂ allowances. A total of 24,272,157 CO₂ allowances were sold at a clearing price of \$16.00, with bids ranging from \$2.56 to \$25.00 per allowance. The auction generated \$388.4 million for states to reinvest in strategic programs, including energy efficiency, renewable energy, direct bill assistance, beneficial electrification, and GHG abatement programs.

Additional details are available in the [Market Monitor Report for Auction 63](#).

From *RGGI*. March 2024.

RGGI States Release Fifth Control Period Compliance Report

The RGGI-participating states released the [Compliance Summary Report](#) for RGGI's fifth three-year control period. The report found that 221 of the 222 power plants subject to RGGI requirements (CO₂ budget sources), or 99.5%, met their compliance obligations. In terms of emissions, 99.9% of covered power sector emissions were in compliance.

From *RGGI Press Release*. April 2024.

Australia's Soil Carbon Credit Issuance Expected to Rise

According to Australia's Clean Energy Regulator, the country's issuance of carbon credits for soil storage projects is expected to continue to rise in 2024 following a jump last year. A total of 253,009 Australian carbon credit units were issued for soil storage in 2023, with less than 2,000 issued before 2023.

From *S&P Global*. March 2024.

Paper Provides Legal Clarity for Voluntary Carbon Credits in Singapore

A legal paper, titled "[The Legal Character of Voluntary Carbon Credits: A Way Forward](#)," examined the importance of clarifying the legal characterization of voluntary carbon credits (VCCs) and offers a possible characterization of VCCs as intangible property in Singapore. The paper, launched jointly by investment platform company GenZero and the Singapore law firm Allen & Gledhill LLP, highlights carbon market gaps to address market fragmentation and related challenges through legal certainty and international consensus.

From *GenZero*. March 2024.



SCIENCE**Researchers Conduct Global Study of Coastal Seas as Carbon Reservoirs**

Coastal seas form a complex transition zone between the two largest CO₂ sinks in the global carbon cycle—land and ocean. A team of researchers led by the Cluster of Excellence Climate, Climatic Change, and Society at Universität Hamburg and the Helmholtz-Zentrum Hereon investigated the role of the coastal ocean in a model representation and found that the intensity of CO₂ uptake is higher in coastal seas than in the open ocean. The study was **published in the journal *Nature Climate Change***.

From *ScienceDaily*. March 2024.

**Scientists Discover Methods to Regulate Carbon Storage in Humus Layer of North China Forest**

A team of scientists from the Institute of Applied Ecology of the Chinese Academy of Sciences studying litterfall and soil carbon ascertained that exchangeable manganese (Mn) is a critical factor regulating carbon accumulation in boreal forests. The researchers showed that exchangeable Mn is essential for maintaining humus in boreal forests to the extent that changes in global carbon cycles may be significantly affected over decades. Thus, they suggested that a more accurate representation of Mn-mediated mechanisms

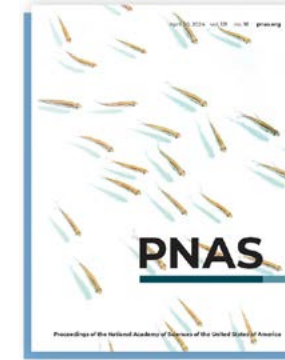
affecting carbon storage in biogeochemical models will increase confidence in model structure, parameter estimation, and predictions of soil organic matter production and litter decomposition. The study was **published in the journal *Proceedings of the National Academy of Sciences***.

From *Phys.org*. March 2024.

Researchers Study How Disturbances Influence Carbon Storage in Forest Soils

A **study** by the Swiss Federal Research Institute WSL analyzed the role of natural disturbances on carbon storage in forest soils. The scientists examined 151 studies worldwide to assess the release of CO₂ and, therefore, of stored carbon following a disturbance. They concluded that forest fires have the greatest impact, followed by windthrow, timber harvesting, and insect pests. More important than the type of disturbance, however, were the types and amounts of organic carbon stored in the soil before an event.

From *WSL News*. March 2024.

**Carbon Storage Capacity of Trees Studied**

A study **published in the journal *Proceedings of the National Academy of Sciences*** attempted to calculate how potential climate change could impact the carbon storage capacity of trees. Researchers found that when average daily temperatures exceed 68°F, and in conditions of drought, trees may release more CO₂ into the atmosphere than previously thought with current climate models. This occurs through a process called photorespiration, which is a “leak” in photosynthesis that happens only during the daytime. CO₂ release increases as temperatures rise and water availability declines, but falls as atmospheric concentrations of CO₂ increase.

From *Nautilus*. March 2024.

About DOE'S CARBON TRANSPORT and STORAGE PROGRAM

The **Carbon Transport and Storage Program** at the National Energy Technology Laboratory (NETL) is focused on developing and advancing technologies to enable safe, cost-effective, permanent geologic storage of CO₂, both onshore and offshore, in different geologic settings. The technologies being developed will benefit both industrial and power sector facilities that will need to mitigate future CO₂ emissions. The program also serves to increase the understanding of the effectiveness of advanced technologies in different geologic reservoirs appropriate for CO₂ storage—including saline formations, oil reservoirs, natural gas reservoirs, unmineable coal seams, basalt formations, and organic-rich shale formations—and to improve the understanding of how CO₂ behaves in the subsurface. These objectives are necessary to increasing public confidence in safe, effective, and permanent geologic CO₂ storage.

The [Carbon Transport and Storage Program Overview](#) webpage provides detailed information of the program's structure, as well as links to the webpages that summarize the program's key elements.

Carbon Transport and Storage Program Resources

Newsletters, program fact sheets, best practices manuals, roadmaps, educational resources, presentations, and more information related to the Carbon Transport and Storage Program is available on [DOE's Energy Data eXchange \(EDX\) website](#).

Get Social with Us

There are several ways to join the conversation and connect with NETL's Carbon Transport and Storage Program:

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About NETL'S CARBON TRANSPORT and STORAGE NEWSLETTER

Compiled by the National Energy Technology Laboratory, this newsletter is a monthly summary of public and private sector carbon transport and storage news from around the world. The article titles are links to the full text for those who would like to read more (note that all links were active at the time of publication).

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