

CTSN CARBON TRANSPORT and STORAGE NEWSLETTER

VOL. 24, NO. 11

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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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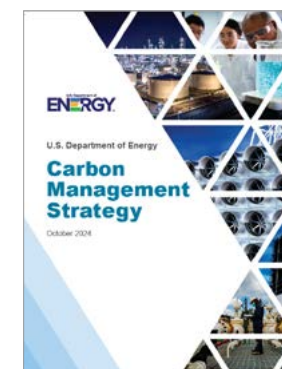
DOE/FECM/NETL HIGHLIGHTS



DOE releases Carbon Management Strategy for public comment

The U.S. Department of Energy (DOE) announced the release of a Carbon Management Strategy for public comment. The report provides a comprehensive roadmap for the remainder of the decade that outlines the diverse tools and approaches DOE will use to develop and deploy carbon management solutions in line with the administration's climate, economic and social priorities. DOE's **Carbon Management Strategy** is focused on near-term actions that can position carbon management to scale as needed in subsequent decades. The near-term strategy through 2030 incorporates several components, including building out carbon dioxide (CO₂) transportation and storage infrastructure where it likely will be needed most in the future. DOE is soliciting additional comments from stakeholders to assist them in ensuring the report meets the needs of stakeholders and communities involved in deploying carbon management projects. Comments must be submitted electronically to carbonmanagementstrategy@hq.doe.gov by December 10, 2024.

From energy.gov. October 2024.



ANNOUNCEMENTS

OCED awards CO₂ capture, transport and storage pilot

DOE's Office of Clean Energy Demonstrations (OCED), through its Carbon Capture Large-Scale Pilot Projects Program, awarded federal funding to the **Carbon Capture Pilot at Vicksburg Containerboard Mill** — a pulp and paper mill in Redwood, Mississippi — to begin Phase 1 activities. The project aims to capture 120,000 metric tons of CO₂ per year and transport it to a site for geologic storage using existing pipelines. During Phase 1, project lead RTI International plans to complete a front-end engineering design (FEED) study to determine the specifications for incorporating carbon capture into the facility and will start workforce planning, project permitting, and providing input into OCED's National Environmental Policy Act review process.

From [energy.gov](https://www.energy.gov). September 2024.

OCED issues NOI to fund investments in CCUS

DOE's OCED issued a Notice of Intent (NOI) of funding to catalyze investments in transformative carbon capture, utilization and storage (CCUS) technologies. This funding — made possible by the Bipartisan Infrastructure Law (BIL) under the Carbon Capture Demonstration Projects Program and the Carbon Capture Large-Scale Pilot Projects Program — seeks to enhance the confidence of commercial entities in adopting CCUS technologies, broaden the market for electricity generation and industrial emitters, and reduce costs to expand the feasibility of CCUS implementation across facilities. OCED anticipates that the funding solicitation will be released in late 2024. Information on engagement opportunities related to this NOI is available on the [OCED website](https://www.OCED.gov).

From [energy.gov](https://www.energy.gov). September 2024.

OCED issues NOI to fund transformational DAC technologies

DOE's OCED issued an NOI to fund the design, construction and operation of mid- and large-scale commercial direct air capture (DAC) facilities and infrastructure scaling platforms. The DAC process separates CO₂ that can then be stored underground or converted into useful, carbon-containing products. The funding supports a broad range of DAC technologies on their path to commercialization and deployment that can spur the growth of additional DAC hubs. As part of the Regional DAC Hubs Program, the funding will help support an ecosystem of projects that aim to remove legacy CO₂ from the atmosphere and meet the administration's clean energy and climate goals.

From [energy.gov](https://www.energy.gov). September 2024.



Save the Date: Deploy24



Speakers have been announced for DOE's **Demonstrate Deploy Decarbonize 2024** (Deploy24), which will take place in Washington, D.C., December 4–5, 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.

DOE Critical Minerals Recovery FOA includes extraction from produced water

DOE's Office of Fossil Energy and Carbon Management (FECM), in collaboration with DOE's Office of Energy Efficiency and Renewable Energy (EERE), announced federal funding to advance technologies that will help reduce costs for recovering critical minerals and materials from domestic secondary and unconventional sources. This includes funding for developing methodologies to scale existing aqueous lithium extraction technologies to small pilot-scale lithium facilities using produced water associated with fossil energy and carbon management operations.

From [energy.gov](https://www.energy.gov). September 2024.



DOE announces FOA to develop innovative systems for clean hydrogen production



DOE-FECM announced the availability of federal funding to make clean hydrogen a more available and affordable fuel for electricity generation, industrial decarbonization and transportation.

Specifically, the funding opportunity announcement (FOA) will support research and development projects that convert feedstocks into syngas to enable the low-cost production of clean hydrogen. Hydrogen can be produced through low-carbon pathways using diverse, domestic resources — including natural gas and coal, coupled with carbon capture and storage (CCS); through splitting of water using nuclear power generated electricity and renewable electricity sources, such as wind, solar, geothermal and hydro-electric power; and from biomass through biological and gasification processes. Gasification of coal, biomass, plastics, common household garbage and other wastes — coupled with CCS to address greenhouse gas (GHG) emissions — is expected to be a low-cost, low-carbon route to producing clean hydrogen.

From [energy.gov](https://www.energy.gov). September 2024.

ANNOUNCEMENTS *(cont.)*


UKCCSRC awards funding to 13 projects

The United Kingdom Carbon Capture and Storage Research Community Network+ (UKCCSRC) awarded funding to 13 research projects through their [Flexible Funding 2024](#) call. The wide range of selected projects, which will last between three and nine months, have a strong focus on improving efficiency and safety and support the UK government's net-zero objectives.

From *Carbon Capture Journal*. September 2024.



Baker Hughes unveils CCUS project optimization platform

Baker Hughes  Texas-based energy company Baker Hughes announced the launch of CarbonEdge™, a digital solution for operators of CCUS projects. The platform centralizes all surface and subsurface data, enabling optimal risk management and accurate regulatory reporting. The tool is designed to meet the needs of players in the energy sector seeking to effectively integrate CCUS projects into their operations.

From *energynews*. September 2024.

Arup joins Aramis CCS project

Arup — a global engineering and sustainable development firm — has undertaken a FEED study for the technical tunneling work on the [Aramis CCS hub project](#). The new CCS hub will provide the infrastructure needed to transport captured industrial carbon emissions for storage in depleted gas fields in the Dutch North Sea.

From *Arup News Release*. September 2024.

Gevo to acquire Red Trail Energy CCS assets

Gevo Inc., a developer of net-zero hydrocarbon fuels and chemicals, announced it has reached an agreement to acquire the ethanol production plant and CCS assets of Red Trail Energy LLC. The acquisition includes existing CCS assets with a total storage capacity of 1 million metric tons per year, of which 160,000 metric tons per year are currently being utilized.

From *Gevo News Release*. September 2024.



Company seeks to advance BECCS



Elimini, a U.S.-based carbon removals company, was launched during [Climate Week NYC](#). By advancing bioenergy with carbon capture and storage (BECCS) in the United States and beyond, Elimini aims to help meet demand for both 24/7 renewable energy and high-integrity carbon removals.

From *PR Newswire*. September 2024.

RGGI States Initiate Auction Process for Auction 66

The states participating in the Regional Greenhouse Gas Initiative (RGGI) released the Auction Notice and application materials for their 66th quarterly CO₂ allowance auction, to be held December 4, 2024. The Auction Notice for CO₂ Allowance Auction 66 provides potential auction participants with the information needed to submit a Qualification Application and indicate their intent to bid. Auction 66 will be the last quarterly auction in which states will offer CO₂ allowances for purchase to meet CO₂ compliance obligations for this interim control period (January 1 through December 31, 2024). Market participants can continue to obtain CO₂ allowances through various secondary markets.

From *RGGI*. October 2024.

RGGI Inc.



PROJECT AND BUSINESS DEVELOPMENTS

DOE's LPO announces commitment to Wabash Valley Resources

DOE's Loan Programs Office (LPO) announced a conditional commitment for a loan guarantee to Wabash Valley Resources LLC that would help finance a commercial-scale waste-to-ammonia production facility using CCS technology in West Terre Haute, Indiana. The project would be equipped with CCS and repurpose a gasifier, originally used to generate power utilizing petroleum coke, to produce 500,000 metric tons of anhydrous ammonia annually while storing CO₂.

From *energy.gov*. September 2024.



CCS project to be built in Louisiana

Oil pipeline firm Crescent Midstream announced plans to jointly develop and construct a CCS project in Lake Charles, Louisiana. In collaboration with Samsung E&A and Honeywell's technologies, the project would capture CO₂ from the 994-megawatt Lake Charles power station and is expected to capture up to 3 million tonnes of CO₂ per year.

From *Reuters*. September 2024.



PROJECT AND BUSINESS DEVELOPMENTS (cont.)



Consortium to conduct CCS value chain feasibility study



A consortium of major corporations has been commissioned to conduct a feasibility study focused on establishing an overseas CCS value chain. This initiative aims to address CO₂ emissions from various industries in the Tokyo Bay area. The feasibility study will assess the design of facilities responsible for the separation and capture of CO₂, as well as its liquefaction, transportation and storage. Additionally, the study will provide comprehensive cost estimates, identify potential risks, and evaluate the feasibility of implementing CCS within the region's social and industrial frameworks.

From *ChemAnalyst*. October 2024.

Exxon Mobil expands CCS project's capture capacity

Exxon Mobil's CCS expansion project in LaBarge, Wyoming, will expand capture capacity by up to approximately 1.2 million metric tons of CO₂ per year, according to the company. Exxon Mobil's proposal to store carbon underground in Wyoming's Lincoln and Sweetwater counties was approved by the U.S. Bureau of Land Management in 2022. The expansion project includes modifying the existing gas treatment facility to increase capture capacity and installing pipeline to transport CO₂ to the reservoir where it will be stored.

From *Hart Energy*. October 2024.

DNV certifies CO₂ storage for Danish CCS project

DNV certified the first CO₂ storage site for Project Greensand in Denmark. DNV, an independent energy company and assurance provider, granted a "Certificate of Conformity – Site Endorsement and Storage Site," confirming that the project operator has developed plans for the safe and effective geologic storage of CO₂ in compliance with International Organization of Standardization (ISO) standards. **Project Greensand** aims to help establish a value chain for transportation and geologic CO₂ storage offshore in Denmark in 2025-2026. The project is currently in the pilot phase.

From DNV News Release. September 2024.

Northern Lights CCS facility commissioned

Northern Lights CCS — a cross-border commercial carbon transport and storage facility — has been commissioned, with plans to receive its first CO₂ emissions in 2025. Located in Øygarden, near Bergen (Norway), the Northern Lights facility is backed by a joint venture partnership among Equinor, TotalEnergies and Shell, and is part of the Longship full-scale CCS project initiated by the Norwegian government. Liquefied CO₂ will be transported by special carriers from capture sites to an onshore receiving terminal in western Norway before being transported by pipeline for storage in a reservoir in the North Sea.

From *Riviera Maritime*. September 2024.

Texas CO₂ storage project to be jointly developed

The Japanese company Marubeni will participate in and jointly develop a CCS project in south Texas with Ozona — a San Antonio-based environmental services company. The project involves capturing CO₂ released from multiple gas production and processing plants in South Texas, transporting it via dedicated pipelines, and storing it in underground saline formations.

From *Carbon Capture Journal*. September 2024.

EPC company signs contract to build large-scale CCS facility in Denmark

MT Group — an engineering, procurement and construction (EPC) contractor — signed a contract with Danish energy company Ørsted for the engineering and construction of balance of plant (BoP) piping and equipment for a carbon capture facility. This contract is part of Ørsted's 20-year agreement with the Danish Energy Agency for the Ørsted Kalundborg CO₂ Hub project, which aims to capture and store 430,000 tons of CO₂ annually from two Ørsted Power stations. The captured CO₂ will be transported to Northern Lights in Norway for geological storage.

From *businesswire*. September 2024.

Wärtsilä to future-proof container vessels with CCS-Ready scrubber technology



Technology group Wärtsilä will supply its CCS-Ready scrubbers for three container ships owned by German operator Leonhardt & Blumberg. While the solution will assure continued regulatory compliance for sulfur oxide emissions, the scrubbers are termed "CCS-ready" because, as part of their installation, Wärtsilä will perform additional design and engineering work to ensure that future retrofits for a full CCS system on the vessels are accounted for.

From *Wärtsilä Press Release*. September 2024.

Phase 1 of Ravenna CCS project begins operations

Mitsubishi Heavy Industries' (MHI) carbon capture technology, the KM CDR Process™, has been deployed to remove approximately 25,000 tonnes of CO₂ annually at a fully operational European post-combustion carbon capture plant, which is part of the **Ravenna CCS project** — an Italian carbon capture, transport and storage project launched by Eni and Snam. The captured CO₂ is transported through reconverted gas pipelines and then injected and stored in Eni's Porto Corsini Mare Ovest depleted offshore gas field. Over the coming years, with Phase 2, the further industrial-scale development of the Ravenna CCS project will enable the storage of up to 4 million tonnes of CO₂ per year by 2030.

From *MHI News*. September 2024.



PROJECT AND BUSINESS DEVELOPMENTS *(cont.)*

Petronas, Japanese firms advance CCS project

Malaysia's state-owned Petronas and eight Japanese companies signed a contract with Japan's state-owned energy firm JOGMEC to proceed with commissioning of design work on a CCS project to transport and store CO₂ from Japan to Sarawak, Malaysia. The companies will work together to examine the equipment and costs required for the separation, collection and liquefaction of CO₂ released from multiple industries in Japan's Setouchi area, including steelworks, power and chemical plants, as well as the marine transport and injection and storage of the CO₂ in Sarawak.

From *Argus Media*. September 2024.

LEGISLATION AND POLICY

Introduced legislation would require EPA to report CO₂ emissions caused by fossil fuel exports

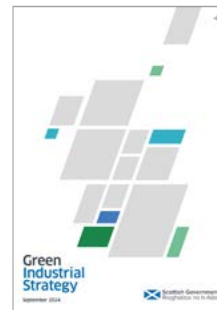
Legislation that would require the U.S. Environmental Protection Agency (EPA) to report CO₂ and methane emissions related to U.S. fossil fuel exports was introduced in the U.S. House of Representatives. The [Exported Carbon Emissions Report Act](#) will require EPA, within 180 days of enactment and annually thereafter, to publish a summary for each of the previous 10 years of the total emissions of CO₂ and methane that are released (1) within the boundaries of the United States that are the result of the extraction, processing, transportation, combustion and other use of fossil fuels; and (2) outside the boundaries of the United States that are the result of leakage and combustion of fossil fuels produced or refined in the United States and subsequently exported from the United States.

From *U.S. Congressman Sean Casten (IL-06) Press Release*. September 2024.

Scottish government strategy outlines potential role of CCUS

The Scottish government published its [Green Industrial Strategy](#), identifying five key areas in which the country should prioritize resources and investment to grow globally competitive industries. Among the key areas was the development of a self-sustaining CCUS sector. According to the strategy, Scotland intends to take a series of concrete actions to accelerate the scale-up of CCUS, including assessing the current status of and future opportunities for CCUS at the national level; supporting CCUS growth in Scotland and internationally; ensuring coordination, timely decision-making and communication among industry, local authorities and agencies; and working alongside the UK government and other European Union (EU) countries to establish a self-sustaining international market for CCUS.

From *Global CCS Institute*. September 2024.



UK government pledges funding for CCS

The UK government pledged nearly £22 billion (approximately \$24 billion USD) for projects to capture and store carbon emissions from energy, industry and hydrogen production. The funding, over 25 years, will subsidize three projects on Teesside and Merseyside to support the development of "carbon capture clusters," including the infrastructure to transport and store carbon. It will also support two transport and storage networks that will transport captured carbon to Liverpool Bay and the North Sea for geologic storage.

From *BBC News*. October 2024.

German Carbon Management Strategy pushes for CCS

The German government's draft Carbon Management Strategy includes a push for CCS, according to reports. The German government had already [agreed to key provisions](#) of the strategy earlier in 2024, together with a draft reform to the country's carbon storage law. It would allow the storage of CO₂ under the seabed, as well as onshore — but only if the federal states choose to do so — thus ending the current ban on carbon storage.

From *Clean Energy Wire*. September 2024.

EU funding call targets DACCS and BECCS

The EU announced two funding calls aimed at supporting innovations in the fields of carbon removal and carbon conversion. The [first call](#) targets carbon removal technologies specializing in direct air carbon capture and storage (DACCS) and BECCS. The [second call](#) is dedicated to the development of technologies that enable the conversion of captured carbon so it can be used for sustainable fuel production.

From *Carbon Herald*. September 2024.



EMISSIONS TRADING



RGGI states seek stakeholder comments

As part of the RGGI Third Program Review, the RGGI-participating states released modeling of an additional regional cap trajectory scenario for stakeholder review and comment. The RGGI states are also seeking ideas from market participants and other stakeholders on ways to accommodate potential participation by states that may wish to participate in RGGI in the future, but that are not currently participating in the Third Program Review, including states that have previously adopted regulations consistent with the current RGGI program.

From *RGGI News Release*. September 2024.



New Frontier Markets launches voluntary carbon marketplace

New Frontier Markets (NFM) — a climate technology firm focused on enhancing transparency and efficiency in the voluntary carbon offset market — launched a [voluntary carbon marketplace](#). NFM also announced a partnership with OPIS, a Dow Jones Company and source for energy and commodity pricing information, to deliver transparent carbon market price indications directly to buyers and project developers on NFM's marketplace. The partnership is focused on engineered carbon credits, such as CCUS, direct air capture and methane abatement, among other measurable engineered projects.

From *PR Newswire*. September 2024.



CFTC approves final guidance regarding listing of voluntary carbon credit derivative contracts



The Commodity Futures Trading Commission (CFTC) approved final guidance regarding the listing for trading of voluntary carbon credit derivative contracts. The guidance applies to designated contract markets (DCMs), which are CFTC-regulated derivatives exchanges, and outlines factors for DCMs to consider when addressing certain Core Principle requirements in the Commodity Exchange Act and CFTC regulations that are relevant to the listing for trading of voluntary carbon credit derivative contracts.

From *CFTC*. September 2024.

SCIENCE



Researchers explore potential of carbon storage on farmland

Researchers from the International Institute for Applied Systems Analysis explored the potential of carbon storage on farmland to mitigate potential climate change. According to their study, [published in *Nature Foods*](#), practices that could help turn agricultural land into a carbon sink (e.g., planting cover crops, using biochar, and practicing agroforestry) could, by 2050, reduce as many GHG emissions as planting new forests, particularly in regions like sub-Saharan Africa and South America.

From *International Institute for Applied Systems Analysis*. September 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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