Welcome to MRCInfo, a newsletter created to share the latest news from the Midwest Regional Carbon Initiative and the ever-growing field of Carbon Capture, Utilization, and Storage.

MRCInfo

News from the Midwest Regional Carbon Initiative

JULY 2024

In this issue, read about...carbon management information on display at COSI, Battelle testimony at the Ohio Statehouse, newly selected DOE CCS projects, and much more!

2024 MRCI Partners and Stakeholders Meeting Announced!

The MRCI Team is pleased to announce that we are hosting our 2024 Stakeholders and Partners Meeting September 23 and 24, 2024 in Columbus, Ohio. Our team looks forward to sharing the government, commercial, and community engagement work we've been doing to accelerate CCS acceptance and deployment in our 20-state region of the U.S. As the U.S. DOE's Regional Initiative's program comes to a close this year, this event will be a great opportunity to see what's coming next for our region as well as to establish partnerships to continue advancing CCS.

We are working to create the agenda for this meeting and the associated workshops, so if you have any questions or suggestions, please let us know. More information on registration and hotel blocks will be communicated soon. In the meantime, **SAVE THOSE DATES!** We look forward to seeing you this fall in Columbus!

There is no charge to attend the meeting. However, as in the past, sponsorships from our industrial partners are crucial for meeting the costs of the meeting. Please let us know if you are interested in supporting.

MRCI co-PI Neeraj Gupta facilitates discussions between the audience and presenters. 2022 Columbus, OH

MRCI Midwest Regional Carbon Initiative

MRCI at COSI! 2024 COSI Science Festival Recap

On May 4th, the Center for Science and Industry (COSI) hosted their annual COSI Science Festival in Columbus, Ohio. Each year, Battelle as a major sponsor, sets up a large tent and informs attendees about its variety of scientific research through featured experts and demonstrating experiments. For the third year in a row, Battelle's Energy and Resilience Group participated, sharing information about ongoing subsurface geology and carbon management projects as well as teaching people of all ages the science behind the practices.

Battelle Program Manager Marlon McKoy leads attendees through a porosity and permeability experiment using rocks from the Appalachian Basin.

At the MRCI section of the tent, attendees learned about porosity and permeability through applying water to different types of rock (sandstones, limestones, and shales) to see how it responds on the surface. They also tried out a bike pump display to see if they are "stronger than a cap rock" and can push air through a cap rock core. Battelle also created two backdrop displays focusing on the geology of and how the geology is ideal for CCS. You can check out the posters by visiting these links (link 1) (link 2).

Battelle also highlighted the work of the ARCH2 Hydrogen Hub currently under negotiations with the U.S. Department of Energy, discussing the basics of hydrogen energy and the role of CCS in the future of the hub with event attendees. Special thanks to the Ohio Geological Survey for providing rock samples for this effort, and to the Columbus Metro Parks and Ohio Department of Natural Resources for supplying photographs for the posters!

Battelle Outreach Coordinator Ivan Wehner leads attendees through the bike pump experiment which demonstrates how air moves (or doesn't move) through rocks based on different porosities and permeabilities.

Carbon Capture and Storage Discussed at the Ohio Senate Energy and Public Utilities Committee Meeting

In April, presenters from the American Petroleum Institute, Battelle, and Holcim testified in front of the Ohio Senate Energy and Public Utilities Committee on behalf of the carbon capture and storage (CCS) technologies and expansion. The testimonies involved showing CCS's viability, its importance in decarbonizing hard-to-abate sectors, and its contribution towards climate goals. Among the presenters were Jennifer Stewart, Director of Climate and ESG Policy for the American Petroleum Institute, who discussed the opportunities presented by CCS; Shawn Bennett, Energy and Resilience Division Manager for Battelle, who discussed expanding CCS in Ohio to help with the expansion of blue hydrogen – hydrogen that utilizes natural gas combined with CCS; and Andrew Schepers, Regional Manager, Government Affairs for Holcim, who discussed CCS's contribution to decarbonizing hard-to-abate industries as well as utilizing captured carbon.

The goal of the testimony was to show support for a robust state economy by advancing both production of Ohio's vast oil and natural gas resources and its manufacturing base, while at the same time reducing GHG emissions through CCS. Witnesses discussed the need for CCS legislation to provide clarity surrounding key regulatory requirements and processes that could help move Ohio forward on CCS projects.

MRCI's Co-Principal Investigator Neeraj Gupta testified to the Ohio House Energy and Natural resources Committee in favor of Ohio House Bill 358, a bill proposing the establishment of a regulatory framework for carbon capture and storage in Ohio. In his testimony, Gupta highlighted the benefits of CCS, stating that it will create thousands of jobs as well as help usher in an energy transition. He also specifically discussed the ARCH2 Hydrogen Hub, which, if a framework were to be established, would accelerate Ohio as one of the key states for the hub. Watch Gupta's testimony here starting at 26:14. Read more about Ohio House Bill 358 here.

PROJECT SPOTLIGHT

Illinois Geological Survey and One Earth Apply for Class VI Permits

The Illinois State Geological Survey (ISGS), who leads the Illinois Storage Corridor project and is co-lead on the MRCI, partnered with One Earth Sequestration (OES) to characterize a site for carbon storage in McLean County, IL. ISGS and OES have developed and applied to the U.S. EPA for three UIC Class VI permits to construct CO_2 injection wells in McLean County, ILL. These wells would be used to permanently store approximately 460,000 metric tons of carbon emissions from the One Earth Energy ethanol production facility in Gibson City, IL. The applications are currently in the technical review phase, and U.S. EPA estimates a final permit decision in January 2025. Construction of the capture and compression facility is anticipated to conclude in August 2024.

Projects Decarbonizing Hard-to-Abate Sectors Selected for Negotiation

The DOE selected 33 projects for negotiation all seeking to decarbonize hard-to-abate sectors. The sectors DOE is focusing on are chemicals and refining, cement and concrete, iron and steel, aluminum and metals, food and beverage, and glass. The projects span across 20 states and will receive funding from the $6 billion set aside for this opportunity. Of the projects, 11 are in the MRCI region, contributing largely to the decarbonization of the Midwest and Northeast. Those projects are:

Cement and Concrete

- Low-Carbon Calcined Clay Cement Demonstration: Port Deposit, Maryland
- Mitchell Cement Plant Decarbonization Project: Mitchell, Indiana

Iron and Steel

- Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation: Middleton, Ohio
- Steel Slab Electrified Induction Reheat Furnace Upgrade: Lyndora, Pennsylvania

Aluminum and Metals

- Low Carbon SmartMelt Furnace Conversion: Ravenswood, West Virginia
- Zero Waste Advanced Aluminum Recycling: Wabash, Indiana

Food and Beverage

- Decarbonization of Unilever Ice Cream Manufacturing: St. Albans, Vermont; and Waterbury, Vermont
- Delicious Decarbonization Through Integrated Electrification and Energy Storage: Champaign, Illinois; Fremont, Ohio; Holland, Michigan; Kendallville, Indiana; Lowville, New York
- Heat Batteries for Deep Decarbonization of the Beverage Industry: Plainfield, Illinois
- Flexible Fuel Electric Hybrid Glass Furnace Demonstration: Toledo, Ohio
- Glass Furnace Decarbonization Technology: Zanesville, Ohio

Sealing Formation Reservoir Catalog

Researchers at the National Energy Technology Laboratory (NETL) published a new dataset outlining potential sealing formations for subsurface storage reservoirs in the United States. The dataset looks at six regions in the U.S. – Northeast Midwest, Southeast and Atlantic, Southwest and South Rockies, North Central and Alaska, and the Pacific Coastal – and seeks to understand the places where carbon storage is most viable in each region. The goal of this dataset is to be a "valuable resource for researchers, policymakers, and industry professionals interested in geologic carbon storage and the identification of prospective seal units in U.S. sedimentary basins," according to NETL Geologist Paige Morkner. Read more about this dataset here and check out the catalog by visiting NETL's Energy Data eXchange database post here.

U.S. Steel Partners with CarbonFree

U.S. Steel signed an agreement with CarbonFree to capture and mineralize up to 50,000 metric tons of CO_2 from U.S. Steel's Gary Works Blast Furnaces at their facility in Gary, Indiana. CarbonFree will use their Skycycle technology which takes CO_2 from industrial processes and converts it into a carbon-neutral calcium carbonate. This partnership helps U.S. Steel work towards achieving their goal of net-zero greenhouse gas emissions across all operations by 2050. Read more about this partnership here.

Coal-fired Power Plant to be Converted to BECCS Facility in Michigan

Babcock & Wilcox recently announced that it was given a limited notice to proceed to begin work on converting a coal-fired power plant to bioenergy with CCS (BECCS) in partnership with NorthStar Clean Energy. The power plant – located in Filer City, Michigan – will employ Babcock & Wilcox's biomass SolveBright post-combustion CO_2 capture technology. Read more about this project from the press release here.

URI and UK Partner to Develop a Direct Ocean CO_2 Removal Process

The University of Rhode Island (URI) and the University of Kentucky (UK) were recently awarded funding from the DOE to develop an ocean-fairing electrochemical direct ocean capture system for carbon. The project will utilize renewable energy to power a device that will remove excess CO_2 from ocean water with the goal increasing the ocean's ability to absorb CO_2, mitigating the adverse effects that excess CO_2 emissions have caused on the ocean, such as warming and acidification. Learn more about the project and the technology here.

LEARNING OPPORTUNITIES

DOE Launches STEM Careers Portal

The U.S. Department of Energy (DOE) launched the portal for DOE's STEM Training and Workforce Development Opportunities. In this portal, the DOE offers opportunities and pathways for a diverse workforce to pursue STEM careers aimed at solving complex energy challenges. The portal offers events, updates on internship deadlines, and has resources about opportunities at DOE, the national labs, and beyond. Check out the resources in more depth by visiting the DOE STEM Portal here.

API Develops Best Practices for Public Engagement in Pipelines Guide

The American Petroleum Institute recently released a Best Practices Guide focused on public engagement in pipeline construction and operations, otherwise known as RP 1185. This report was drafted in coordination with federal, state, and local governments, tribal governments, public interest groups, and community leaders alongside representatives from the natural gas and oil industry. This report will be a useful resource for community engagement activities, a key component to making energy projects more just and equitable for communities where projects are sited. Read about the report here. The link to purchasing the full report can be found here.

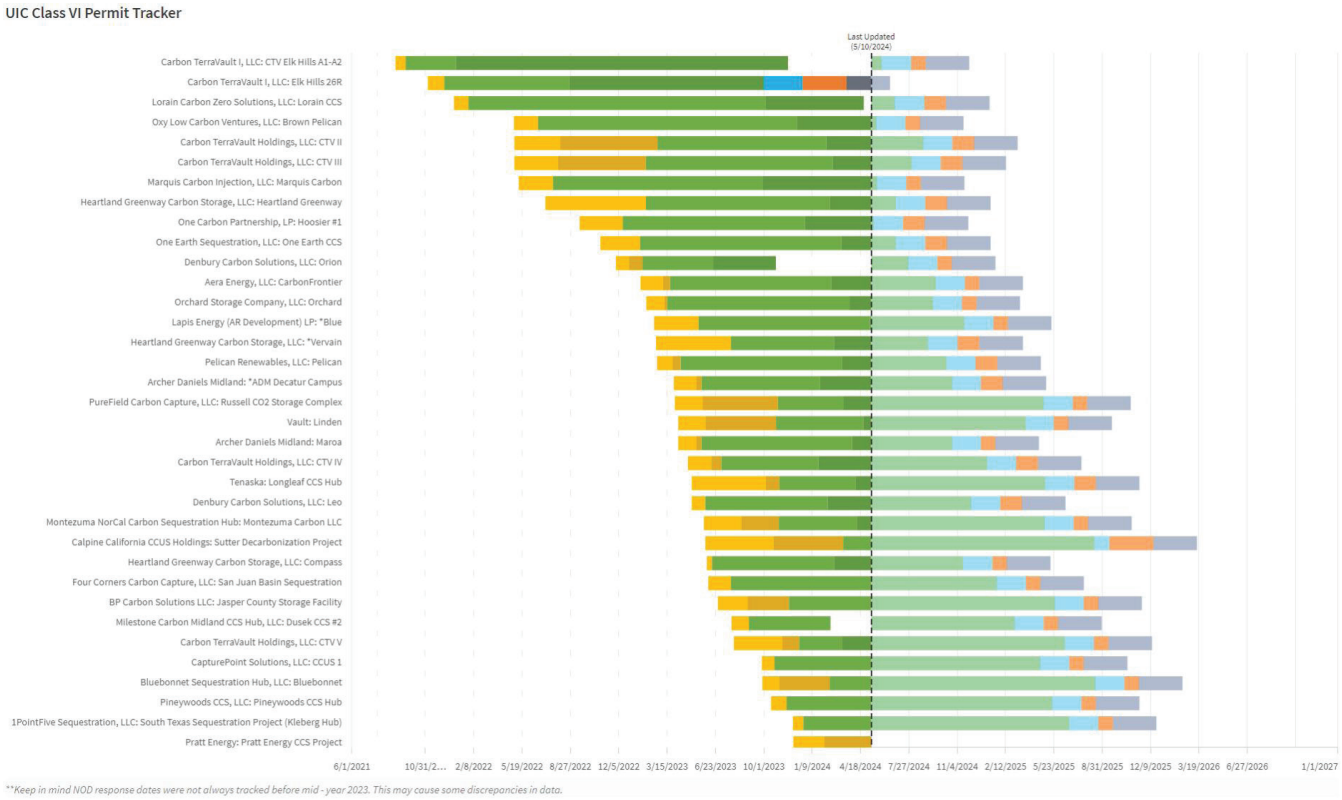
Carbon Storage Opportunities in Pennsylvania

The Clean Air Task Force recently released a report highlightening opportunities for carbon storage in Pennsylvania. In this report, they looked at the magnitude of storage capacity in Pennsylvania, identifying sites that have the potential to store hundreds to thousands of metric tons of CO_2. While most of the sites are in the western part of the state, there are still ample opportunities in the east to employ CCS. Read the full report here.

LEGISLATIVE ACTIVITY

EPA Issues to Updates Class VI Permit Tracker!

The EPA Class VI Permit tracker just got a major upgrade! With the new updates users can view the current Class VI summary metrics and how many wells are in each phase of the review process, among other things. It also allows users to zoom in for more detail on each project status. Check it out here.



***Keep in mind NOD response dates were not always tracked before mid - year 2023. This may cause some discrepancies in data.*

CCS Legislation Activity in Pennsylvania

Legislation in Pennsylvania was recently approved in the Pennsylvania Senate that would lay the foundation for a CCUS in the state and is now currently with the Pennsylvania House. The bill defines the purpose of carbon storage, pore ownership, and much more. Read more about the bill here or read the full bill here.

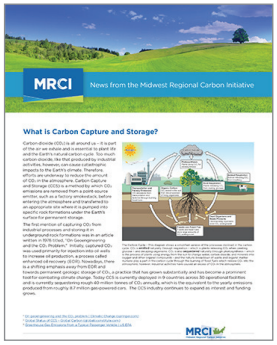
CCS Legislation Activity in Illinois

The Illinois Senate recently passed a bill that will create the Safety and Aid for the Environment in Carbon Capture and Sequestration Act (SAFE CCS Act), which establishes additional requirements for CO_2 pipeline development, permitting for sequestration projects, and protections for pore space owners. The Bill is currently pending approval from the Illinois Governor. Read more about the bill here.

FACT SHEETS

The First MRCI Fact Sheet

This edition of the newsletter features the first fact sheet created by the MRCI team. This fact sheet addresses the overarching question of "What is carbon capture and storage?" and dives into the process, environmental impact and safety, and why it is necessary for the energy transition. This is the first in a suite of fact sheets being developed by the MRCI team, so stay tuned! **It will be available in July and we'll send an email to the list when it's available for download.**

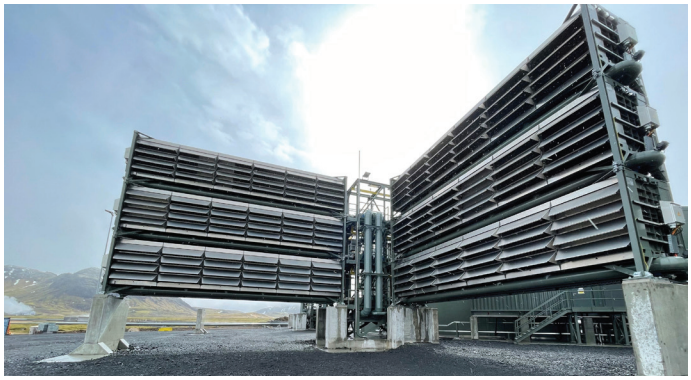


Learn About NETL's Direct Air Capture Center

The National Energy Technology Laboratory (NETL) released a fact sheet on its new Direct Air Capture Center (DACC). The Center focuses on supporting the development and commercialization of direct air capture (DAC), technologies capable of pulling CO_2 out of the atmosphere. The Center offers many benefits to partners in regard to places for testing, access to materials, and access to NETL's decades of experience. Read more about the DACC here.

IN THE NEWS

Mammoth DAC Facility Opens in Iceland



Swiss DAC company Climeworks, a project partner on the Battelle-led Louisiana-Based Project Cypress DAC hub, recently opened its second DAC facility in Iceland: Mammoth. Mammoth builds on the learnings from Climeworks' first facility, Orca, with the capability to capture 40,000 tons of CO_2 from the air annually and store it permanently underground. Learn more about Mammoth and the work being done by Climeworks here.

RELATED UPCOMING EVENTS

2024 FECM/NETL Carbon Management Research Project Review Meeting
Pittsburgh, PA – August 5-9, 2024
Link to Event

The International Meeting for Applied Geoscience and Energy (IMAGE)
Houston, TX – August 26-29, 2024
Link to Event

2024 MRCI Partners and Stakeholders Meeting
Columbus, OH – September 23-24, 2024
Stay tuned for more details

GHGT-17 Conference
Calgary, Alberta, Canada – October 20-24, 2024
Link to Event

National Carbon Capture Conference and Expo
Saint Paul, MN – November 19-20, 2024
Link to Event

Demonstrate, Deploy, Decarbonize
Washington, D.C. – December 4-5, 2024
Link to Event

Like what you see? Have ideas for future features?
Want your news or resources spotlighted?
Email us!

The Midwest Regional Carbon Initiative is a structured five-year program funded by the Department of Energy. The MRCI is co-led by Battelle and the University of Illinois and comprised of team members from multiple state geological surveys, academic institutions, and industry. Backed by more than 20-years of experience in the field, the initiative works to connect science, technology, and research to advance CCUS in 20 states across the Midwest, Mid-Atlantic and New England regions.

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