

# Energy Department Announces More Than \$44 Million for CO2 Storage Projects

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WASHINGTON - The U.S. Department of Energy's (DOE) Office of Fossil Energy (FE) today announced that 16 carbon storage projects have been selected to receive more than \$44 million for cost-shared research and development. The funding is part of DOE's Carbon Storage Assurance Facility Enterprise (CarbonSAFE) initiative, which seeks to help mitigate carbon dioxide (CO<sub>2</sub>) emissions from the burning of fossil fuels.

Projects selected as part of this initiative will address key research gaps in the path toward the deployment of carbon capture and storage (CCS) technologies, including the development of commercial-scale (50+ million metric tons CO<sub>2</sub>) geologic storage sites for CO<sub>2</sub> from industrial sources. These sources, such as cement and iron and steel production, currently account for an estimated 21 percent of U.S. carbon emissions.

"CCS will play a very important role as the world moves toward a lower-carbon economy," said Lynn Orr, DOE's Under Secretary for Science and Energy. "The U.S. must continue a leadership role in the development and deployment of CO<sub>2</sub> storage technologies as a key element of a diversified energy economy. The funding announced today through the CarbonSAFE initiative will help to address technical barriers to commercial-scale carbon storage as worldwide demand for these types of clean energy solutions continues to rise."

The selected projects will build on the lessons learned from FE's [Regional Carbon Sequestration Partnerships' \(RCSP\)](#) large-scale field projects while considering the next set of technical challenges for carbon storage. These and other CCS efforts enable industries to continue operation while emitting fewer greenhouse gasses. This effort will also promote R&D to ensure that storage is safe, cost-effective, and environmentally sustainable.

The selected projects under CarbonSAFE aim to develop integrated CCS complexes that are constructed and permitted for operation in the 2025 timeframe over a series of sequential phases of development: Integrated CCS Pre-Feasibility, Storage Complex Feasibility, Site Characterization, Permitting and Construction. The selections announced today apply to the first two of those phases.

## CCS Pre-feasibility Projects – Phase I

Ten recipients representing thirteen projects were selected under Phase I for more than \$15 million in federal funding. These projects will provide a pre-feasibility study for a commercial-scale geological storage site. Objectives include formation of a CCS coordination team to address regulatory, legislative, technical, public policy, commercial, financial, and other issues specific to commercial scale deployment of the CO<sub>2</sub> storage projects. The projects will develop a plan encompassing technical requirements, as well as both economic feasibility and public acceptance of an eventual storage project. Descriptions of the Phase I projects, including federal funding are shown below; funding amounts may vary pending final negotiations.

**1. Carbon Management Institute at the University of Wyoming (Laramie, Wyoming)** — The Carbon Management Institute at the University of Wyoming will undertake two projects (DOE Cost: \$2,385,919):

- A pre-feasibility assessment for secure, commercial-scale CO<sub>2</sub> capture and storage will be performed at the Rock Springs Uplift (RSU).
- A scenario will be considered that includes a CO<sub>2</sub> source assessment based CO<sub>2</sub> capture at Basin Electric Power Cooperative's Dry Fork Power Station, which also houses the Wyoming Integrated Test Center, a CCS test Facility. The project will include a transportation assessment of the existing CO<sub>2</sub> pipeline network and the Wyoming Pipeline Corridor and an evaluation of suitable storage reservoirs within the immediate vicinity of the Dry Fork Power Station.

2. **Board of Trustees of the University of Illinois (Champaign, Illinois)** — The University of Illinois and the Illinois State Geological Survey will develop a plan to address the challenges, opportunities, and risks involved in building a commercial, integrated CCS project in the Illinois East Sub-Basin region. DOE Cost: \$1,212,187

3. **University of Texas at Austin (Austin, TX)** — The University of Texas at Austin will perform a commercial-scale initial characterization of a near-offshore storage complex on the inner shelf of the Gulf of Mexico. DOE Cost: \$1,194,383

4. **University of Utah (Salt Lake City, UT)** — The University of Utah will conduct a high-level sub-basinal evaluation for potential storage sites near the PacifiCorp's Hunter Power Plant. A secondary CO<sub>2</sub> source, PacifiCorp's Huntington Power Plant, will also be evaluated. DOE Cost: \$1,331,228

5. **Battelle Memorial Institute (Columbus, Ohio)** — The Battelle Memorial Institute will undertake the following three projects (DOE cost: \$3,590,512):

- A commercial-scale Integrated Mid-Continent Carbon Stacked Storage Hub will be developed in Nebraska and Kansas. The project will concentrate on identifying specific stacked storage sites in southwest Nebraska and central Kansas and assessing their potential.
- A pre-feasibility effort will be conducted for developing an integrated commercial CO<sub>2</sub> storage site for deep geologic intervals in the Central Appalachian Basin in the 2025 timeframe.
- An integrated commercial CO<sub>2</sub> storage site for deep geologic intervals will be developed in the Northern Michigan Basin. The project will address the technical, economic, legal, engineering, surface, subsurface, and public acceptance challenges related to implementation of a CO<sub>2</sub> storage complex in this region.

6. **Electric Power Research Institute (Palo, Alto, California)** — The Electric Power Research Institute will conduct an initial assessment of the technical, economic, social, and regulatory/policy challenges and solutions that must be addressed to develop a commercial-scale CO<sub>2</sub> storage complex in the southern San Joaquin Valley (SSJV), California. DOE Cost: \$969,136

7. **University of North Dakota (Grand Forks, North Dakota)** — The University of North Dakota will determine the feasibility of integrating commercial-scale CO<sub>2</sub> capture of industrially sourced CO<sub>2</sub> emissions from Nebraska Public Power District's Gerald Gentleman Station with proximal storage and minimal transportation. DOE Cost: \$1,244,473

8. **University of Kansas/Kansas Geological Survey (Lawrence, Kansas)** — The University of Kansas and the Kansas Geological Survey project, ICKan, will identify and address the major technical and nontechnical challenges of implementing CO<sub>2</sub> capture and transport and establishing secure geologic storage for CO<sub>2</sub> in Kansas. DOE Cost: \$1,186,504

9. **Columbia University (New York, New York)** — Columbia University will undertake a project that proposes large-scale permanent storage of CO<sub>2</sub> in deep ocean basalt formations to enable mineral carbonation as a safe and publicly acceptable solution for mitigating anthropogenic emissions. DOE Cost: \$1,189,534

10. **Louisiana State University and A&M College (Baton Rouge, Louisiana)** — Louisiana State University will develop a multidisciplinary team of stakeholders; analyze the feasibility of an integrated CCS project; and conduct a detailed sub-basinal evaluation of the potential for CO<sub>2</sub> storage in both depleted oil and gas fields and saline reservoirs in South Louisiana. DOE Cost: \$1,052,600

#### **Storage Complex Feasibility Projects – Phase II**

Three projects were selected under Phase II for more than \$29 million. These projects will perform the initial characterization of a storage complex identified as having high potential. They will also establish the complex's feasibility for commercial storage (50+ million metric tons CO<sub>2</sub>). These selected projects did not require the same pre-feasibility work needed in Phase I projects and demonstrated readiness to move on to the next phase.

The objectives of this phase build upon the pre-feasibility work under CarbonSAFE that focus on one or multiple specific reservoirs within the defined storage complex, and comprise data collection; geologic analysis; identification of contractual and regulatory requirements and plans to satisfy them; subsurface modeling to support geologic characterization, risk assessment, and monitoring; and public outreach. Descriptions of the first round of Phase II projects, including federal funding are shown below:

1. **Southern States Energy Board (Norcross, Georgia)** — The Southern States Energy Board will establish a commercial-scale CO<sub>2</sub> geologic storage complex adjacent to the Mississippi Power Company Kemper County Energy Facility. DOE Cost: \$11,220,537
2. **University of North Dakota (Grand Forks, North Dakota)** — The University of North Dakota will determine the feasibility of developing a commercial-scale CO<sub>2</sub> geologic storage complex in central North Dakota. DOE Cost: \$8,787,622
3. **Board of Trustees of the University of Illinois (Champaign, Illinois)** — The University of Illinois will establish the feasibility of a commercial-scale CO<sub>2</sub> geologic storage complex within the Mt. Simon sandstone formation located in Macon County, Illinois for industrial-sourced CO<sub>2</sub>. City Water, Light and Power and the Abbott Power Plant will be evaluated as CO<sub>2</sub> sources. DOE Cost: \$8,906,264

The above Phase II projects have been selected from those submitted prior to the closing date of August 23, 2016. However, applications may still be **submitted** for the second closing date of December 1, 2017. Selections under the second closing date are subject to the availability of funds.

The Office of Fossil Energy funds research, development and demonstration projects to reduce the risk and cost of advanced carbon technologies and further the sustainable use of the nation's fossil resources. To learn more about the programs within the Office of Fossil Energy, visit our [website](#) or [sign up](#) for FE news announcements. To learn more about the Office of Fossil Energy's National Energy Technology Laboratory, visit the NETL [website](#).