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# DOE Selects Nine Projects to Receive Funding for Carbon Storage Intelligent Monitoring and Well Integrity and Mitigation Research

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) has selected nine projects to receive funding to research new CO<sub>2</sub> storage technologies devoted to intelligent monitoring systems and advanced well integrity and mitiga...

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The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) has selected nine projects to receive funding to research new CO<sub>2</sub> storage technologies devoted to intelligent monitoring systems and advanced well integrity and mitigation approaches through DOE's [Carbon Storage Program](#).

The Carbon Storage Program advances the development and validation of technologies that enable safe, cost-effective, permanent geologic storage of CO<sub>2</sub>. The program also supports the development of best practices for commercial implementation of carbon capture and storage technologies. The technologies being developed and conducted through the program will benefit the existing and future fleet of fossil fuel power-generating facilities and other industrial CO<sub>2</sub> sources.

The selected projects concentrate on three research priorities: (1) Carbon Capture and Storage (CCS)-specific intelligent systems for monitoring, controlling, and optimizing CO<sub>2</sub> injection operations, and (2) diagnostic tools and methods capable of characterizing borehole leakage pathways or fluid flow in existing wells; and (3) next-generation materials and methods for mitigating wellbore leakage

Project descriptions follow.

**The University of North Dakota** (Grand Forks, ND) will research intelligent monitoring system modules to automate CO<sub>2</sub> storage site monitoring and simulation data, allowing site operators to more efficiently manage operations. Project partners are Computer Modeling Group, Schlumberger, Petroleum Technology Research





Centre, and the CETER Group.

Cost: DOE: \$2,507,627 / Non-DOE: \$696,600 / Total Funding:  
\$3,204,227

**The University of Texas at Austin** will develop and demonstrate an intelligent monitoring system to automate geologic carbon sequestration closed-loop management that will track injected CO<sub>2</sub> as it moves within storage reservoirs. There are no project partners.

Cost: DOE: \$1,315,873 / Non-DOE: \$346,354 / Total Funding:  
\$1,662,227

**Archer Daniels Midland** (Decatur, IL) will research use of a permanent seismic monitoring network to deliver critical forecasts of reservoir conditions and enable decision-making related to optimal operation and maintenance. Partners are Lawrence Berkeley National Laboratory, Sillixa Ltd., U.S. Geological Survey, Schlumberger, Richland Community College, and the Illinois State Geological Society.

Cost: DOE: \$2,891,996 / Non-DOE: \$728,897 / Total Funding:  
\$3,620,893

**Los Alamos National Security LLC** (Los Alamos, NM) will research technology to identify, characterize, and monitor leakage pathways using acoustic probes that use 3-D scanning of barrier systems to identify fracture defects in wellbore cement. Partners are the University of New Mexico, Sandia National Laboratory, and Chevron.

Cost: DOE: \$1,061,886 / Non-DOE: \$267,000 / Total Funding:  
\$1,323,866

**Battelle Memorial Institute** (Columbus, OH) will research and validate a program to identify and characterize wellbore leakage potential based on analysis of well records, sustained casing pressures and field monitoring in Michigan, West Virginia, and Wyoming. The results will provide a practical program for addressing wellbore integrity issues at storage fields. Partners are the West Virginia Geologic and Economic Survey and Core Energy.

Cost: DOE: \$1,149,327 / Non-DOE: \$327,868 / Total Funding: \$1,477,195

**Montana State University** (Bozeman, MT) will research mineralization techniques for sealing wells to mitigate wellbore leakage pathways under a variety of conditions and ensure permanence of CO<sub>2</sub> storage. Partners are the University of Stuttgart, Schlumberger, Montana Emergent Technologies, and Shell Global Solutions International BV.

Cost: DOE: \$2,000,000 / Non-DOE: \$518,750 / Total Funding: \$2,518,750

**C-Crete Technologies LLC** (Houston, TX) will research new CO<sub>2</sub> barrier technologies based on core synthesis strategies incorporating nanoparticles and nanocomposites for sealant products. Partners are Rice University and Baker Hughes Inc.

Cost: DOE: \$1,999,414 / Non-DOE: \$499,960 / Total Funding: \$2,499,374

**The University of Colorado** (Boulder, CO) will research a new technology to repair leakage of wellbores and reduce the risk of steel corrosion by combining a nanoparticle injection technique with simultaneous extraction of harmful ions out of steel casings. Sandia National Laboratory is a partner in the project.

Cost: DOE: \$1,038,475 / Non-DOE: \$261,525 / Total Funding: \$1,300,000

**The University of Virginia** (Charlottesville, VA) will develop dopamine-based stimuli-responsive coatings on mineral silicates to drive mineral carbonation reactions to control leakage pathways. Princeton University is a partner in the project.

Cost: DOE: \$609,639 / Non-DOE: \$167,236 / Total Funding: \$776,875

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