

Recovery Act Regional Technology Training Centers

The National Energy Technology Laboratory (NETL) understands that successful commercialization of CO₂ storage technologies depends on knowledge sharing among various public and private entities. Results and lessons learned from both field projects and core research and development will provide the foundation for future large-scale CO₂ capture and storage (CCS) field tests across North America. Knowledge sharing will also help address potential future challenges regarding public acceptance, infrastructure requirements, and regulatory frameworks. NETL promotes CCS knowledge sharing through Regional Carbon Sequestration Partnership (RCSP) working groups, best practices manuals, public outreach and education efforts (including the NETL Carbon Storage Program web site), and Recovery Act Regional Technology Training Centers. The seven training centers established by NETL focus on training personnel to implement CCS technology. Carbon capture and storage technologies offer great potential for reducing CO₂ emissions and mitigating CO₂ emissions. However, deploying them will require a significantly expanded workforce trained in various specialties that are currently underrepresented in the United States.

Training activities have focused on the applied engineering and science of CCS for site developers, geologists, engineers, and technicians in order to provide a technology transfer platform for CO₂ geologic storage. This project-based training will produce a workforce with the skills and competencies in geology, geophysics, geomechanics, geochemistry, and reservoir engineering needed by the CCS industry. The selected projects address five activity areas:

- **Implement an Organized Sponsorship Development Program:** Develop a self-sustaining, long-term technology program without federal government support
- **Short Courses on CCS Technologies:** Work with experts in the field to identify and develop training materials for professionals
- **Regional Training – Outreach and Networking:** Conduct training related to CCS technologies
- **Perform Regional/Basin Technology Transfer Services:** Achieve technology transfer through outreach materials and coordination of regional/basin efforts
- **Plan and Manage the Recipient’s Regional Program:** Ensure that the regional programs are well planned and managed

The projects led by the University of Wyoming and the University of Illinois are the only remaining projects supported and managed through NETL in 2014. As of December 2013, the training centers have trained over 3,700 participants and distributed more than 11,200 professional development hours. The following figure shows the locations of the training centers.

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Training Center Locations and Performer

Participant	Project Title	Training Activities
Board of Trustees of the University of Illinois	Development and Implementation of the Midwest Geological Sequestration Consortium Sequestration Training and Education Program (STEP)	The STEP project utilizes a modular, multi-track approach, allowing different professional participants to customize individual programs. The project benefits the Illinois Basin region by providing curriculum, outreach, and networking on five focal areas for CCS technology development.
Environmental Outreach and Stewardship Alliance	Carbon Capture and Storage Training	This project facilitated the development of a CCS workforce through regional carbon storage technology training in the northwest, focusing on key topics related to carbon storage. EOS implemented an organized sponsorship program; developed short courses on CCS technologies; provided regional training, outreach, and networking; performed regional technology transfer services; and planning and managed the regional program. Courses also covered the intricacies of storage in basalts that are present in the region.
New Mexico Institute of Mining and Technology	Southwestern United States Carbon Sequestration Training Center	This project developed a holistic approach to conduct outreach and training for current professionals, inclusive of industry, non-governmental organizations, the general public, and the media. The training also engaged students at all levels, from K-12 to college students, and provided training and tools to secondary education teachers.
Petroleum Technology Transfer Council	Carbon Capture and Storage in the Permian Basin, a Regional Technology Transfer and Training Program	This project focused on the development and delivery of technology training for the Permian Basin. Methods to transfer knowledge included regional workshops, an extended CCS course, a research-oriented workshop, online certificate program, and webinars/e-symposia.
Southern States Energy Board	The Southeast Regional CO ₂ Sequestration Technology Training Program	The project developed short courses on CCS technologies, participating in regional training and other activities through outreach and networking, and performing internet-based and electronic regional/basin technology transfer services. The training addressed: (1) the most promising storage options in the southeast region; (2) the various sources of CO ₂ ; (3) the regional transportation infrastructure; and (4) the legal, regulatory and institutional frameworks.
University of Texas at Austin	Alliance for Sequestration Training, Outreach, Research and Education (STORE)	This project created STORE as part of the Gulf Coast Carbon Center to promote the transfer of scientific knowledge and applied engineering technologies related to CO ₂ storage in the Gulf Coast region. The focus was on the primary objectives needed for emerging CCS industry in the Gulf region and included carbon storage workforce training, public outreach, research and technology dissemination, and workforce pipeline education.
University of Wyoming	Wyoming Carbon Capture and Sequestration Technology Institute; Workforce Training, Technology Transfer, and Information Clearinghouse	The Wyoming CCS Technology Institute (WCTI) implemented training and technology transfer in the Wyoming and Rocky Mountain regions. The WCTI utilized an industry-wide model to train a professional workforce, provided pathways for graduates and professionals from allied fields, and created a vehicle for communicating regional CCS knowledge and technology within the growing industry.