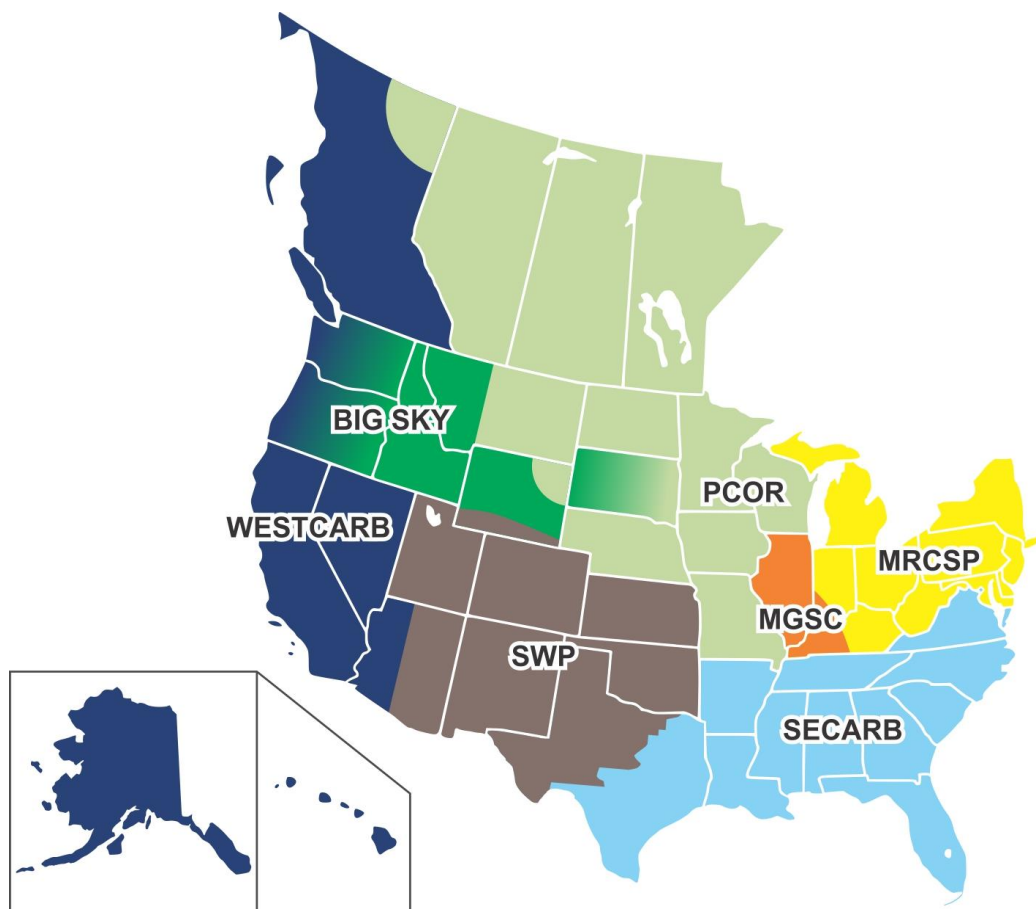




The U.S. Department of Energy (DOE) has formed a nationwide network of regional partnerships to help determine the best approaches for capturing and permanently storing carbon dioxide (CO<sub>2</sub>). The seven regional carbon sequestration partnerships include more than 350 state agencies, universities, and private companies, spanning 43 states, three Native American organizations, and four Canadian provinces. In addition, agencies from six member countries of the Carbon Sequestration Leadership Forum are participating in the Validation Phase field tests. These partnerships, shown in Figure 1, will form the core of a nationwide network mitigate CO<sub>2</sub> emissions by assessing the technical and economic viability of various approaches for capturing and storing CO<sub>2</sub>.



**Figure 1. Map of the DOE Partnerships**

“Carbon sequestration” is the term given to a broad class of new technologies that span “carbon capture,” “geologic storage,” and “terrestrial sequestration.” Carbon capture includes a variety of methods for removing CO<sub>2</sub> from the emissions of industrial sources such as power plants, refineries, ethanol plants and other industrial facilities. In geologic storage, captured CO<sub>2</sub> is stored safely in deep underground geologic formations. CO<sub>2</sub> also can be captured directly from the air and stored in soils and vegetation. This is called terrestrial sequestration.

The Regional Carbon Sequestration Partnership Initiative, as established by DOE, is being implemented three phases:

**Characterization Phase, (2003 – 2005):** During the first phase, the seven partnerships conducted the initial geologic characterization to identify potential Validation Phase sites. They also began to facilitate development of the institutional and policy frameworks needed to validate and potentially deploy carbon storage technologies in each region. This included evaluating which of the numerous approaches that have emerged in the last few years are best suited for the specific regions of the country. It also included assessing possible regulatory and other infrastructure requirements that a region would need for future deployment.

**Validation Phase, (2005 – 2010):** During this second phase, the partnerships conducted small-scale tests at identified locations. The Validation Phase continued to build experience in the technical aspects of carbon storage as well as in environmental permitting, public outreach and involvement, and other infrastructure needs. These tests, conducted in various geologic formations throughout the U.S. and Canada, were designed to validate the capability for safe and secure injection and storage.

**Development Phase, (2008 – 2017):** The primary goal of the third phase is the completion of several large volume carbon storage tests, during which the injection operations go on for several years. These tests will be performed in geologic formations that hold significant promise for future commercial development. This phase will continue to address key issues for CO<sub>2</sub> capture, transportation, injection and storage. The Development Phase tests will be implemented in three stages:

- (1) Site selection, characterization, National Environmental Policy Act compliance, permitting, and infrastructure development
- (2) CO<sub>2</sub> injection and monitoring operations
- (3) Site closure, post injection monitoring and analysis.

## **Links:**

- (1) For more information about the partnerships please see the Web site of the U.S. Department of Energy, National Energy Technology Laboratory (USDOE/NETL) at:  
<http://www.netl.doe.gov/research/coal/carbon-storage/carbon-storage-infrastructure/rcsp>.
- (2) For more information about MRCSP activities please see [www.mrcsp.org](http://www.mrcsp.org).