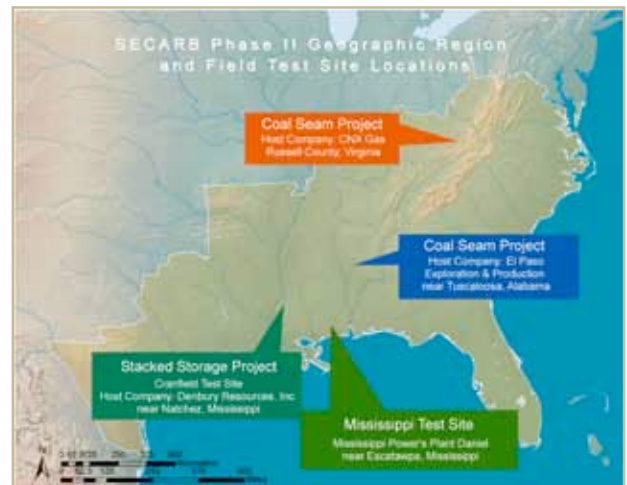


Thank you for your interest in joining the Southern States Energy Board (SSEB) Carbon Management Partnership, including the Southeast Regional Carbon Sequestration Partnership, or SECARB. Four membership categories are available to accommodate various interests. Please review the following project abstract and membership category descriptions and contact the Southern States Energy Board to discuss which option is commensurate with your organization's desired level of involvement. We look forward to your participation in the Partnership!

### SECARB Project Abstract

The SSEB Carbon Management Program provides regional leadership in addressing the many technical and institutional issues that relate to geologic sequestration of carbon dioxide (CO<sub>2</sub>). The SECARB program was established in 2003 as a cooperative cost-share agreement between the U.S. Department of Energy/National Energy Technology Laboratory and the Southern States Energy Board. Currently, SECARB is comprised of over 100 participants representing federal and state governments, industry, academia and non-profit organizations.



During Phase I of the program, SECARB completed an initial screening of potential sources and geologic sinks for carbon sequestration. SECARB's Phase II program, which began in October of 2005, focuses on the most promising opportunities for geologic sequestration within the region that promote the development of a framework and infrastructure necessary for the validation and deployment of carbon sequestration technologies. Phase II projects were completed in 2010 and validated, through field testing, sequestration technologies and corresponding infrastructure approaches related to regulatory, permitting and outreach. The five-year SECARB Phase II program consisted of three diverse field tests in four locations.

Enhanced oil recovery (EOR) stacked formations along the Gulf Coast are a prime target area for geologic storage of CO<sub>2</sub>. Sequestration in these formations can help the U. S. reach national emissions reduction targets. SECARB's research estimated 31 billion metric tonnes (34 billion U.S. tons) of potential storage capacity in the region's depleted oil and natural gas fields. SECARB's Gulf Coast Stacked Storage Field Test, managed by the Texas Bureau of Economic Geology, began injecting CO<sub>2</sub> in July 2008 and continued through December 2010. The goal of this project is to validate the storage capacity of the stacked formations. The site is located in Denbury Resources, Incorporated's (DRI) Cranfield Oilfield near Natchez, Mississippi.

Coal seams are among the most attractive potential CO<sub>2</sub> sinks occurring in the southeastern United States, where a prolific coalbed methane industry, which has produced more than 2.3 trillion standard cubic feet (Tscf) of natural gas, is approaching maturity. CO<sub>2</sub> sequestration in unmineable coal seams can produce enhanced coal bed methane to help offset sequestration costs. An estimated 82.1 billion metric tonnes (90.3 billion U.S. tons) of potential storage capacity exists in the region's unmineable coal seams. There are two SECARB Phase II field tests. The first is managed by Virginia Tech, and CO<sub>2</sub> injection of 1,000 tons was completed in February 2009. This test utilized an existing CNX Gas well located in Russell County, Virginia. The second is managed by the Geological Survey of Alabama, and El Paso Exploration and Production donated a well to the SECARB team for this field test. The site is located near Tuscaloosa, Alabama, and CO<sub>2</sub> injection was conducted from June to August 2010.

Saline formations are the primary CO<sub>2</sub> geologic storage options for the SECARB region because of the extensive saline formations that underlie many of the power plants in the region. SECARB's research estimated 1,440 billion metric tonnes (1,584 billion U.S. tons) of potential sequestration in saline formations in the region. Work performed during the Characterization Phase showed that saline formations with favorable sequestration potential underlie Alabama, Florida, Louisiana, Mississippi, East Texas, and Tennessee. Mississippi Power Company's Plant Victor J. Daniel coal-fired power plant is the host site of SECARB's Saline Reservoir Field Test, which is managed by the Electric Power Research Institute. Injection operations were conducted from October 2-28, 2008.

The SECARB Phase III development project began in October 2007 and integrates carbon capture, transportation and geologic storage. This program consists of two related field demonstrations; an "Early Test" that utilizes pipeline CO<sub>2</sub> and the "Anthropogenic Test" that will use coal-fired power plant CO<sub>2</sub>. The



Phase III Early Test expands the Detailed Area of Study of the Phase II Stacked Storage Project at Cranfield and takes advantage of ongoing CO<sub>2</sub>-EOR efforts by the field operator, DRI. This presents SECARB with the opportunity to monitor the large-volume injection of approximately 1.5 million tonnes of CO<sub>2</sub>, injected over a 1.5-year period, in the down dip water leg of the oil reservoir in order to test commercial and experimental monitoring, verification and accounting protocols. The Phase III CO<sub>2</sub> injection at Cranfield began on April 1, 2009 and will continue through 2011. Both field tests at Cranfield, as well as the Saline Reservoir Field Test, will provide important data in preparation for the Anthropogenic Test. The Early Test is led by the Texas Bureau of Economic Geology, with support and assistance from DRI.

For the Anthropogenic Test, CO<sub>2</sub> will be captured (through a component paid for under separate funding) at Alabama Power Company's Plant Barry, located in Bucks, Alabama. Denbury Resources, Inc. will transport the CO<sub>2</sub> by pipeline approximately 10 miles and the SECARB Research Team will monitor the injection into a saline geologic formation accessed from an area of Denbury's Citronelle Oil Field. Research and development objectives will be to: 1) further test the lessons learned at the Plant Daniel and Cranfield field tests, with respect to CO<sub>2</sub> storage, flow and immobilization mechanisms; 2) evaluate injection and storage conditions at a third geographic point in the same, or a similar, regionally extensive saline reservoir to help establish ultimate CO<sub>2</sub> storage capacity; 3) evaluate how best to integrate and minimize the impacts of CO<sub>2</sub> captured from a power plant on the operation of transportation infrastructure and long-term storage formations; 4) understand how the reservoir architecture (the interplay between the reservoir flow units, seals and baffles) can be used to optimize storage and to minimize the areal extent of the plume; and 5) evaluate the impact of captured CO<sub>2</sub> from power plants on the geochemistry of the saline water in the lower Tuscaloosa Formation. The Anthropogenic Test is led by the Electric Power Research Institute (EPRI), in cooperation with Southern Company and Advanced Resources International, Inc.



## **SSEB Carbon Management Program/SECARB Membership Categories**

### **1. SECARB Cost-Sharing Partners**

#### **Funding Requirement: Technical Task Leadership and Cost-Sharing**

Contributions in the form of cost-sharing are accepted to support the SECARB Phase II and/or Phase III programs, which allows a representative of your organization to participate in team discussions regarding the direction of the program.

### **2. SSEB Carbon Management Program/SECARB Industry Associates**

#### **Funding Requirement: Annual \$10,000 Contribution**

Industry Associates provide an annual monetary contribution of \$10,000 to support the SSEB Carbon Management Partnership/SECARB Program. Allocation of these contributions is at the discretion of the Southern States Energy Board in support of Carbon Management/SECARB tasks and activities. Industry Associates are provided with personalized briefings of activities and unique opportunities to interact with the field teams through field visits and meetings. In addition, SECARB team members are available to provide on-site briefings for Industry Associates and offer unparalleled expertise to your carbon management program.

### **3. Special Project Participants**

#### **Funding Requirement: Monetary Contribution (Unspecified Amount)**

Special Project Participants may provide funding to the Partnership to support a specific project/activity as agreed upon with the SECARB team and Southern States Energy Board. The Southern States Energy Board is authorized to accept funds from any state, federal or interstate agency, institution, person, firm or corporation. An example is the expansion of the Phase I geologic characterization study that was commissioned in North Carolina and South Carolina with support from four local utilities and EPRI.

### **4. Carbon Management Public Partners**

#### **Funding Requirement: \$500 Contributions**

Members of the Public Partners include national laboratories, universities and non-profit organizations. The SSEB Carbon Management Partnership/SECARB requires an annual \$500 contribution from these sectors to become a member of the Public Partners. Representatives of SSEB member states and the federal government are not required to make additional contributions.

## **Contact Us**

For additional information about the SSEB Carbon Management Partnership, featuring SECARB, please contact the Southern States Energy Board.

Southern States Energy Board  
6325 Amherst Court, Norcross, Georgia 30092 USA  
Phone: (770) 242-7712; Fax: (770) 242-0421  
[www.secarbon.org](http://www.secarbon.org)

#### **Overall Program Management**

Kenneth J. Nemeth, SSEB Executive Director ([nemeth@sseb.org](mailto:nemeth@sseb.org))  
Kathryn A. Baskin, SSEB Managing Director ([baskin@sseb.org](mailto:baskin@sseb.org))

#### **Technical Program Management**

Gerald R. Hill, Ph.D., SSEB Technical Advisor ([hill@sseb.org](mailto:hill@sseb.org))  
Kimberly A. Sams, SSEB Assistant Director, Geosciences Programs ([sams@sseb.org](mailto:sams@sseb.org))

#### **Finance/Contract Management**

Kathy A Sammons, SSEB Director, Business Operations ([sammons@sseb.org](mailto:sammons@sseb.org))  
Leigh T. Parson, SSEB Grants and Accounting Specialist ([parson@sseb.org](mailto:parson@sseb.org))

---