

## Methodology and Status of the Southeast Regional Carbon Sequestration Partnership

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### Regional Partnership Composition, Technical and Management Capabilities

The United States Department of Energy's (DOE) Office of Fossil Energy projects that the use of fossil energy for power generation will double by 2030. In addition, global emissions of carbon dioxide (CO<sub>2</sub>) from human activities are projected to increase 60 percent by 2020. Carbon capture, storage, and sequestration technologies are critical to the Nation's ability to meet the President's Global Climate Change Initiative goal of 18 percent reduction in greenhouse gas intensity by 2012.

The Southeast Regional Carbon Sequestration Partnership (SERCSP) is the Southern States Energy Board's (SSEB) proposed framework to address opportunities for carbon sequestration technology deployment in the South. The Partnership represents nine southeastern states that are SSEB members (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee). The Partnership is a diverse group of experts that will collaborate to achieve the project goals and objectives in various roles. SSEB will lead the SERCSP in conducting all activities for Phase I and is responsible for overall project management. Technical Team members will receive funding as well as provide cost sharing related to specific tasks. Besides SSEB, Technical Team members are the Electric Power Research Institute (EPRI); a Mississippi State University team led by the Diagnostic Instrumental Analysis Laboratory (DIAL); Augusta Systems, Inc.; Massachusetts Institute of Technology (MIT); Winrock International; Geological Survey of Alabama (GSA); Advanced Resources International (ARI); Applied Geo Technologies, Inc. (AGT)/Mississippi Band of Choctaw Indians; Tennessee Valley Authority Public Power Institute (TVA-PPI); RMS Research; and, The Phillips Group.

In addition to the Technical Team, the SERCSP Technology Coalition, a joint membership of stakeholders from the public and private sector, will advise, guide and provide input related to advancing carbon sequestration technology deployment in the Southeast. The Technology Coalition is key for identifying viable Phase II pilot projects. Furthermore, these participants are integral to achieving and leveraging the technical information transfer, outreach and public perception activities of the Partnership.

### Methodologies to Characterize the Region and Evaluate CO<sub>2</sub> Sequestration Opportunities

Through SSEB, southern governors exercise the unique opportunity to exchange ideas, explore common issues, address pressing problems and seek regional solutions. These states reside

in the heart of the southern region of the U.S and share common regulatory frameworks, agriculture and forestry resources, ecosystems, socio-economic conditions and a significant dependence on fossil fuel for electricity.

Thus, these states have a natural link to the future of carbon sequestration. With the potential for a carbon-constrained future, the economic fortunes of these nine states may depend on cost-effective implementation of carbon sequestration strategies. For that reason, the SERCSP is vital to ensuring a viable future for the states, businesses, and citizens of this region.

### Project Plan and Approach

**Objectives.** The SERCSP will seek solutions for capture, transport and storage of CO<sub>2</sub> in the region through the following objectives: promoting the development of a framework and infrastructure necessary for the validation and deployment of carbon sequestration technologies in support of the DOE Carbon Sequestration Program; supporting the President's Global Climate Change Initiative goal of reducing greenhouse gas intensity by 18 percent by 2012; and, evaluating options and potential opportunities for regional CO<sub>2</sub> sequestration.

**Scope of Work.** The Partnership will develop a framework and infrastructure necessary for the validation and deployment of carbon sequestration technologies. SERCSP will address CO<sub>2</sub> storage and capture, CO<sub>2</sub> transport, regulatory issues, permitting, communication and outreach, public acceptance, monitoring and verification and environmental efficacy of sequestration within the multi-state area encompassing nine Southeast states. The SERCSP will accomplish its objectives by 1) defining similarities in the nine-state region, 2) characterizing the region relative to sources, sinks, transport, sequestration options, and existing and future infrastructure requirements, 3) identifying and addressing issues for technology deployment, 4) developing public involvement and education mechanisms, 5) identifying the most promising capture, sequestration and transport options, and 6) developing action plans for implementation and technology validation. Work will occur during two budget years. The first budget period (October 1, 2003 through June 30, 2004) will encompass three quarters of activity and the second budget period will encompass one calendar year (July 1, 2004 through September 30, 2005). During year 1, the Partnership plans to complete: 100 percent of Task 1.0; 97 percent of Task 2.0; 36 percent of Task 3.0; and to initiate Task 4.0 and Task 5.0. During budget year 2, the Partnership plans to complete 100 percent of all Tasks.

**Task 1 Define the Geographic Boundaries.** This task highlights the similarities of CO<sub>2</sub> sources and sinks in a region that consumes significant amounts of fossil fuel but has limited production of oil, gas or coal. SSEB has extensive experience in working with industrial partners and its member states to identify permitting considerations relating to energy and environmental technologies.

**Task 2 Characterize the Region .** The region will be characterized relative to sources, sinks, transport, sequestration options, and existing and future infrastructure requirements. Information gathered during Phase I characterization will be archived in a relational database and geographic information system (GIS).

**Task 3 Identify and Address Issues for Technology Deployment.** This task undertakes a preliminary assessment of safety, regulatory and permitting requirements, public perception, ecosystem impacts, monitoring and verification requirements and other potential issues associated with wide scale deployment of promising regional opportunities.

**Task 4 Develop Public Involvement and Education Mechanisms.** The Partnership will develop public involvement and education mechanisms that raise awareness of sequestration opportunities in the Southeast region and provide interested stakeholders with information about supporting technology development efforts.

**Task 5.0 Identify the Most Promising Capture, Sequestration and Transport Options.** The Partnership will begin its assessment of the most promising options. The Partnership will analyze information gathered in the regional assessment to identify the most promising opportunities for capture, transport and sequestration of CO<sub>2</sub>. The initiative will assess and validate the most promising emerging technology developments and identify those minor modifications required to fit the technology to the regional application.

**Task 6.0 Prepare Action Plans for Implementation and Technology Validation Activity.** The Technical Team will prepare Action plans to implement the framework developed leading to small-scale regional technology validation field tests. In developing the plans, the Partnership will consider cost-effective approaches that provide flexibility for assessing multiple candidate technology options. This task will result in Action Plans for capture, transport and storage options. In addition, the Plans will include assessing terms of public involvement, education and acceptance, regulatory and permitting, and accounting frameworks. Finally, the Partnership will integrate the Action Plans to form a regional strategy.