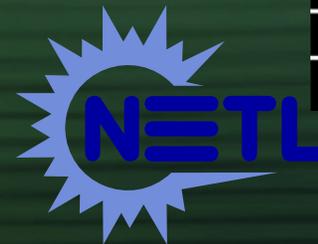


Southern States Energy Board Southeast Regional Carbon Sequestration Partnership

Presentation to:
Regional Carbon
Sequestration Partnerships Initiative
Review Meeting
Pittsburgh, Pennsylvania
October 3, 2006

Presentation by:
Gerald R. Hill, Ph.D.
Senior Technical Advisor
Southern States Energy Board

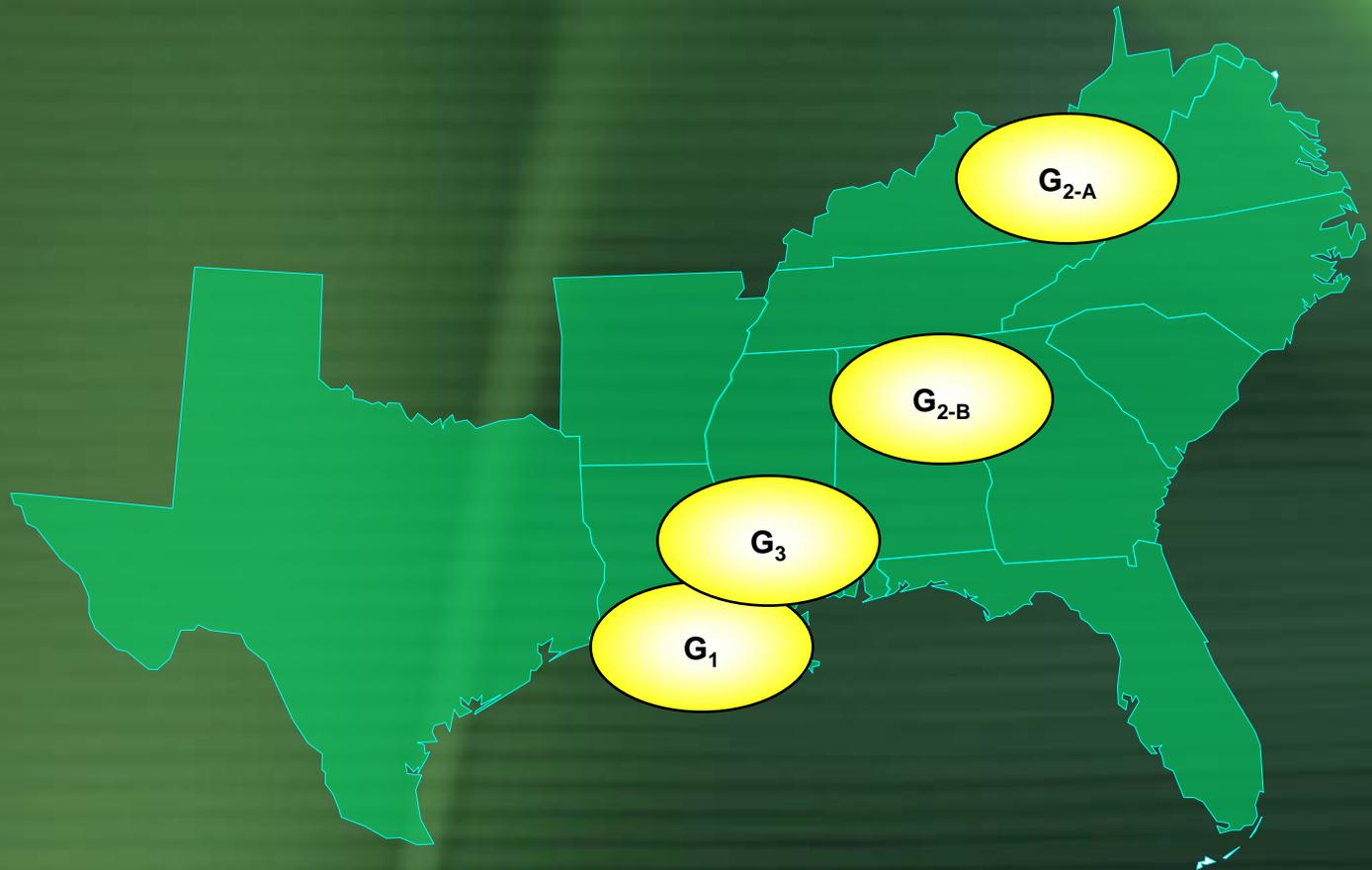


SECARB Phase II Goals

- Further characterize the potential carbon sequestration sinks in the Southeast
- Conduct three field verification studies in four locations of the most promising geologic formations in the region
- Advance the state of the art in monitoring, measurement and verification techniques and instrumentation
- Develop sequestration technologies and characterize geologic sinks for future readiness



SECARB Phase II Geographic Region & Field Test Site Locations



SECARB Phase II Partners *(in alphabetical order)*

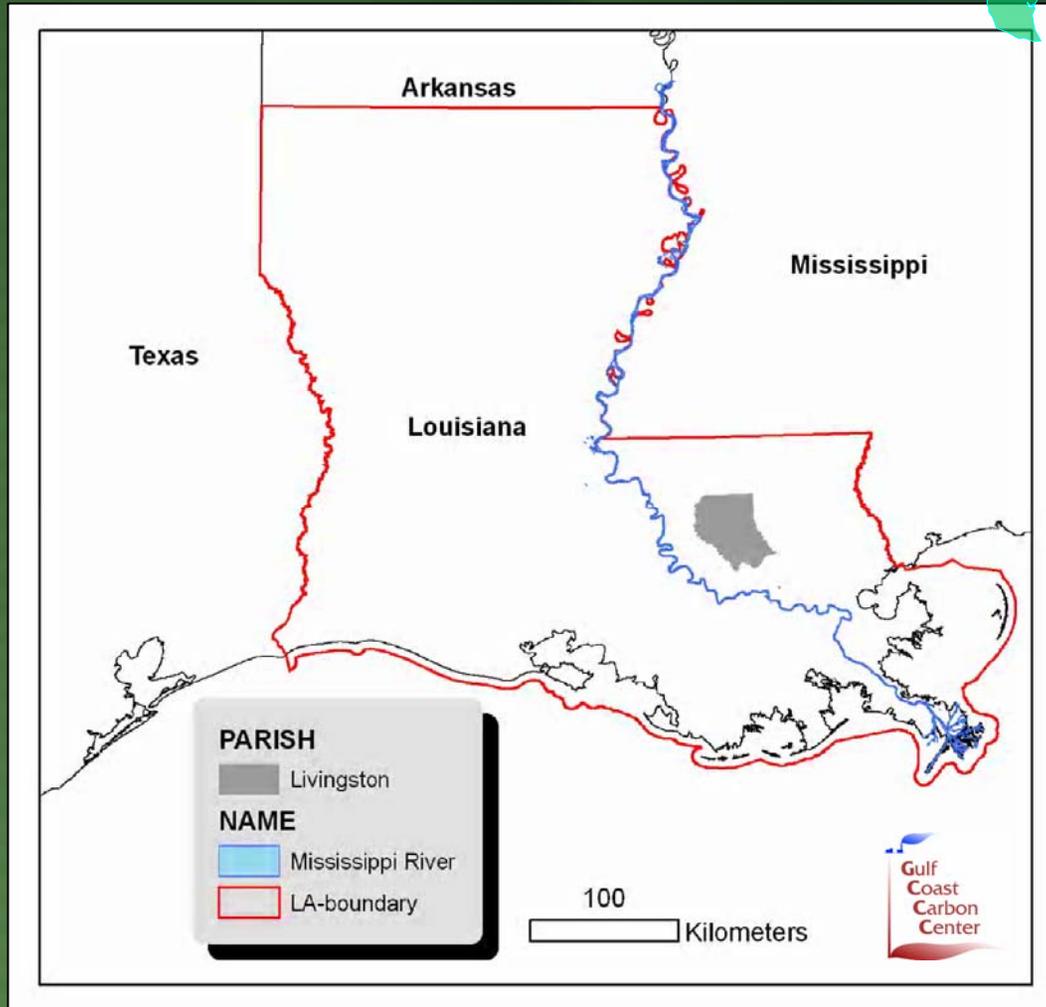
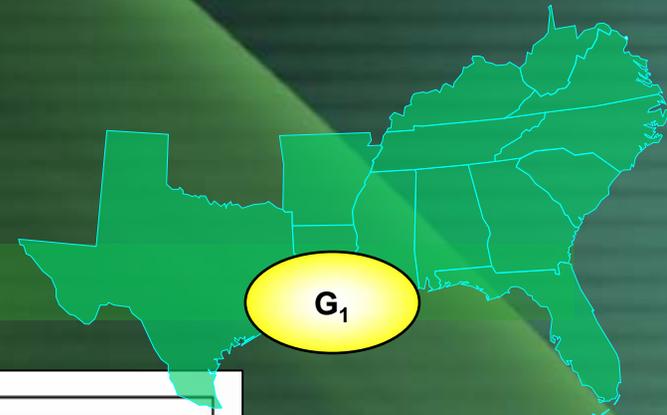
Advanced Resources International
AGL Resources
American Electric Power
Amvest Gas Resources, Inc.
Applied Geo Technologies
Arkansas Oil and Gas Commission
Augusta Systems, Inc.
BP America, Inc.
Buchanan Energy Company
of Virginia, LLC
CO₂ Capture Project
CDX Gas, LLC
Center for Energy and
Economic Development
ChevronTexaco Corporation
Clean Energy Systems, Inc.
Composite Technology Corporation
CONSOL, Inc.
Core Laboratories
Dart Oil & Gas Corporation
Denbury
Dominion Energy
Dominion Resources
Duke Power
Eastern Coal Council
Edison Electric Institute
Electric Power Research Institute (EPRI)
Entergy Services

Equitable Production
Florida Power & Light Company
Geological Survey of Alabama
Geological Survey of Kentucky
Georgia Environmental
Facilities Authority
Georgia Forestry Commission
Georgia Power Company
Interstate Oil and Gas
Compact Commission
Lawrence Berkeley National Laboratory
Lawrence Livermore National Laboratory
Louisiana Department of
Environmental Quality
Louisiana Geological Survey
Marshall Miller & Associates
Massachusetts Institute of Technology
McJunkin Appalachian Oilfield Company
Mississippi Power Company
Mississippi State University (MSU)
North American Coal Corporation
North Carolina State Energy Office
Nuclear Energy Institute
Oak Ridge National Laboratory
Old Dominion Electric Cooperative
Phillips Group, The
Pine Mountain Oil & Gas, Inc.
Praxair

Progress Energy
RMB Earth Science Consultants, Ltd.
RMS Strategies
SCANA Energy
Schlumberger
Smith Energy
South Carolina Dept. of Agriculture
South Carolina Electric & Gas
Company
South Carolina Public Service
Authority/Santee Cooper
Southern Company
Southern Company Services
Southern States Energy Board ★
Susan Rice and Associates, Inc.
TXU Corporation
Tampa Electric Company
Tennessee Valley Authority
Texas Bureau of Economic Geology
-Gulf Coast Carbon Center
United Company, The
United States Department of
Energy/National Energy Technology
Laboratory
Virginia Polytechnic Institute
and State University – Virginia Center
for Coal and Energy Research
Winrock International

Gulf Coast Stacked Storage Project

Field Test 1.0



Stratigraphic Section

Field Test 1.0: Gulf Coast Stacked Storage Project

		FORMATION	DESCRIPTION	
TERTIARY	NEOGENE	UNDIF. POST-ANAHUAC	MASSIVE SAND/SHALE	
		ANAHUAC	PREDOM. LIMESTONE	
		FRIO	SANDS/SHALES	
	OLIGO-CENE	VICKSBURG GROUP	CLAY/CALC. SANDS	
	EOCENE	JACKSON GROUP	YAZOO CLAY MOODYS BRANCH	MARINE CLAY MARL
			COCKFIELD	SAND AND SHALE
		CLAIBORNE GROUP	COOK MTN SPARTA	MASSIVE LIMESTONE SAND AND SHALE
			CANE RIVER	SHALE, GLAUCONITIC
			WILCOX GROUP	DELTAIC SAND AND SHALE
			MIDWAY	MASSIVE GRAY SHALE CHALK
			SELMA CHALK	CHALK
	CRETACEOUS	GULF	EUTAW	SHALE, BASAL SAND
			TUSCALOOSA	SANDS AND SHALES

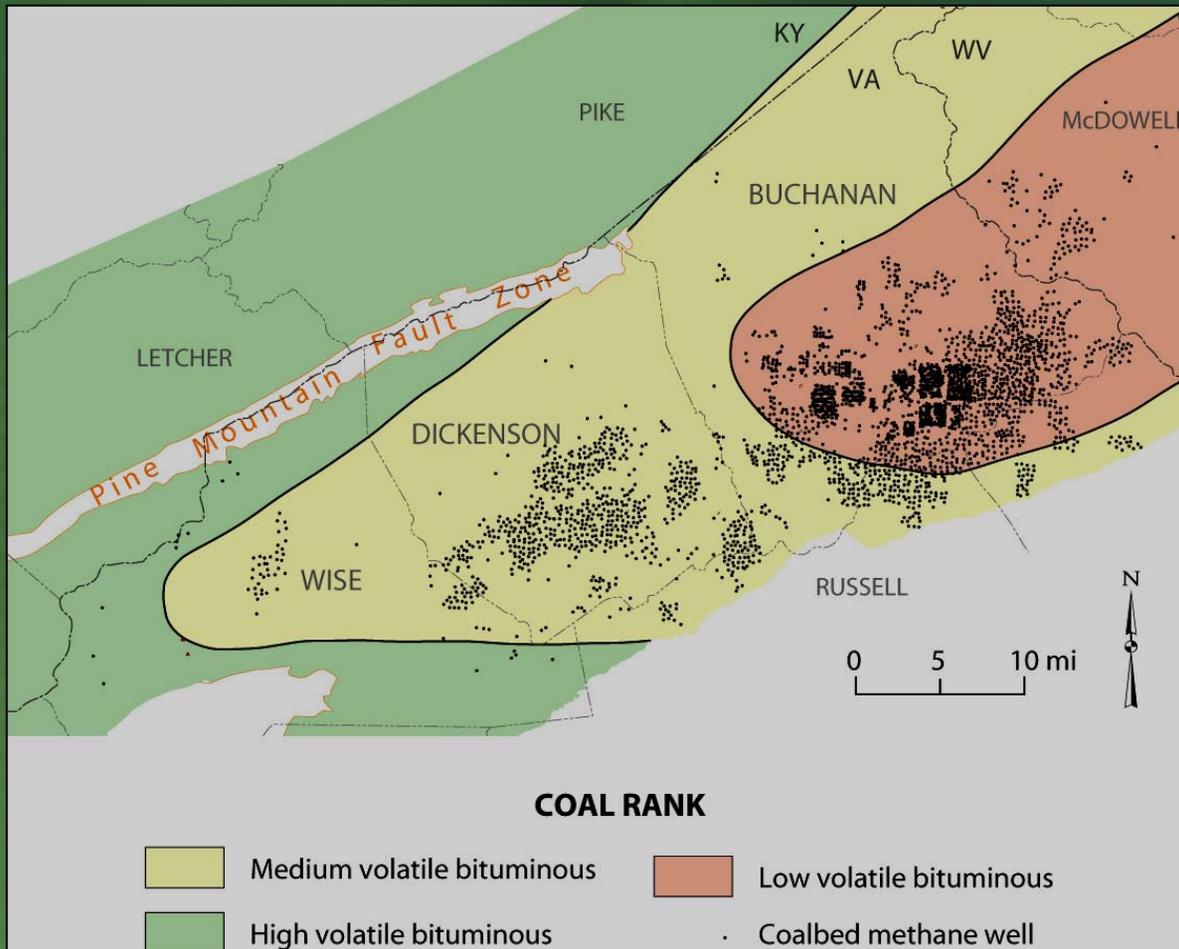


- TEST INTERVAL SANDSTONE
- SANDSTONE
- LIMESTONE-CHALK
- SHALE



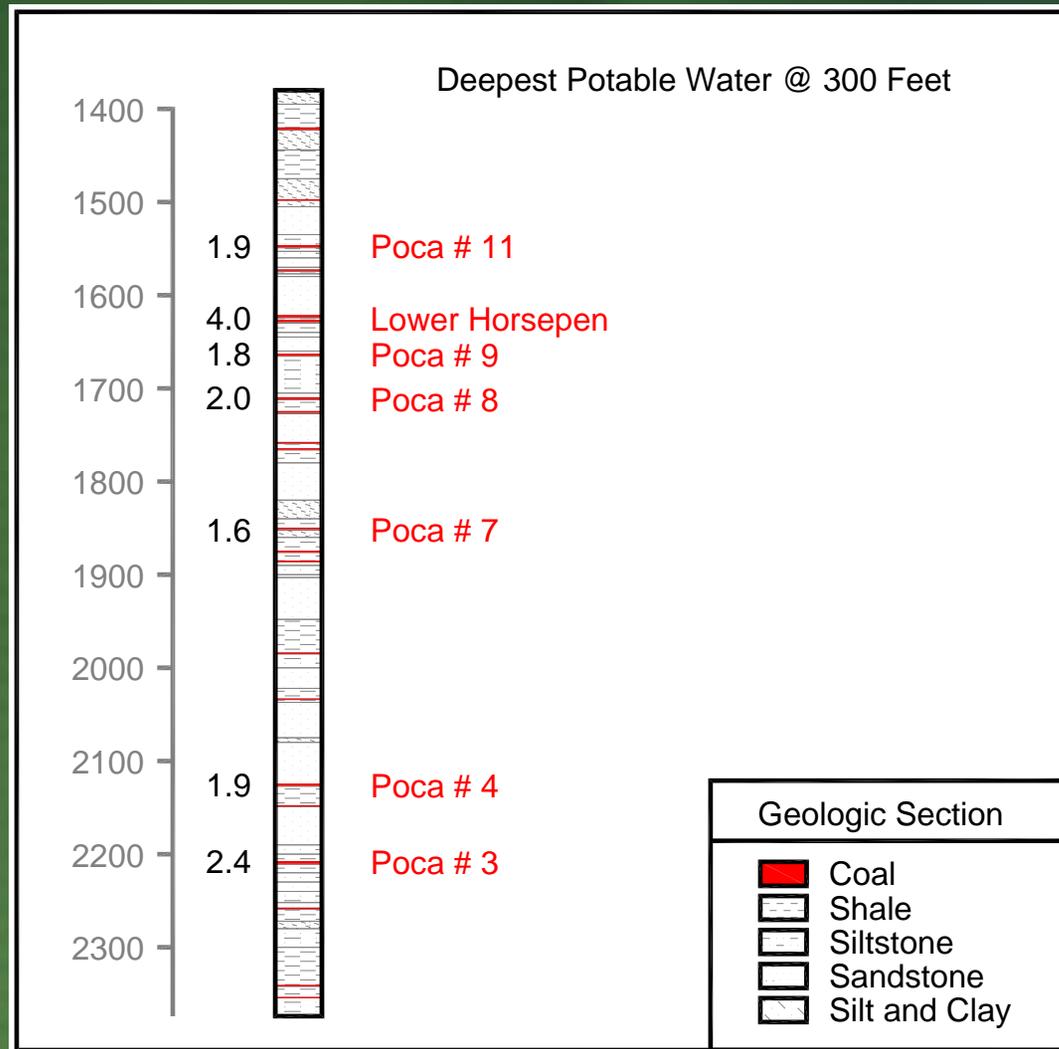
Coal Seam Project

Field Test 2.0: Kentucky, Virginia and West Virginia



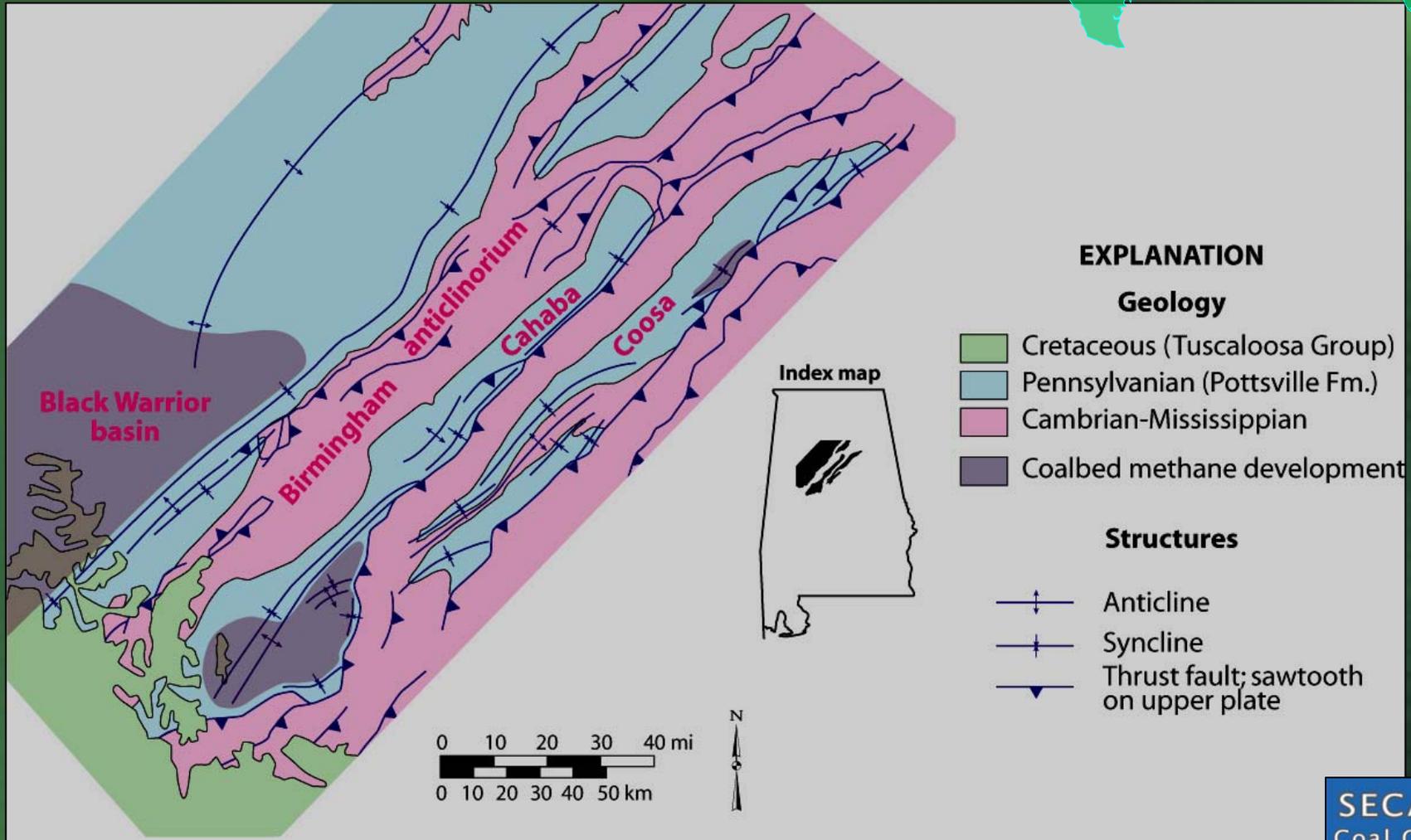
Geologic Section

Field Test 2.0: Southwestern Virginia Proposed Injection Pilot



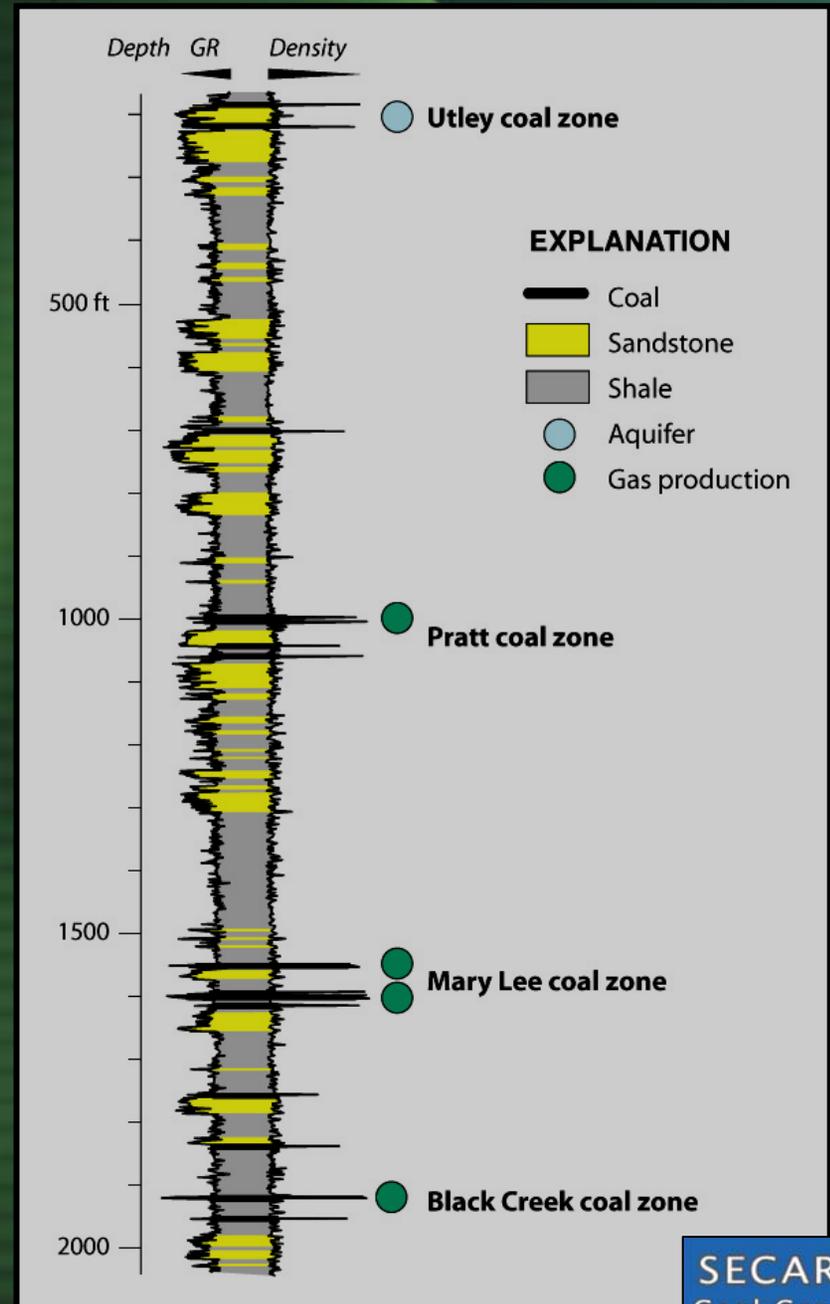
Coal Seam Project

Field Test 2.0: Black Warrior Basin, Alabama



Coal Seam Project

Field Test 2.0: Pottsville
Stratigraphy, Black
Warrior Basin, Alabama



Blue Creek and
Deerlick Creek Fields

SECARB

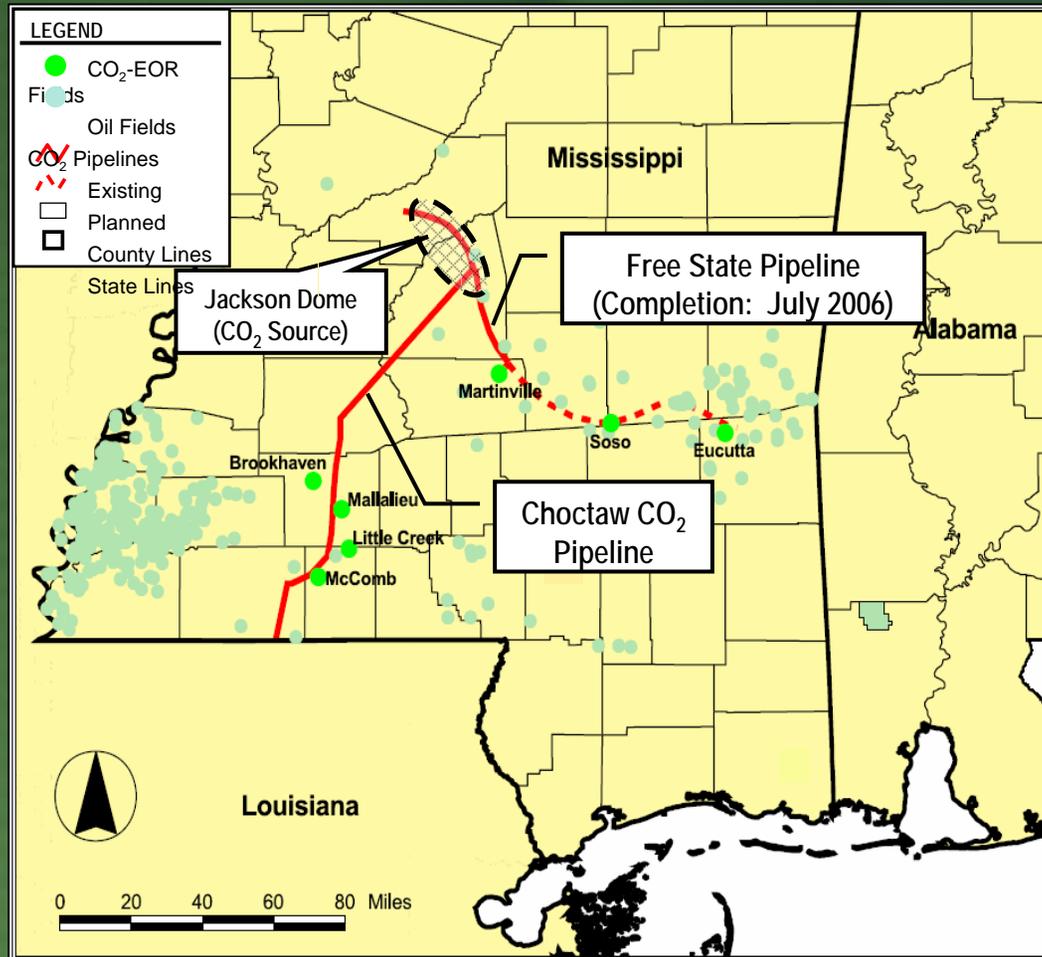
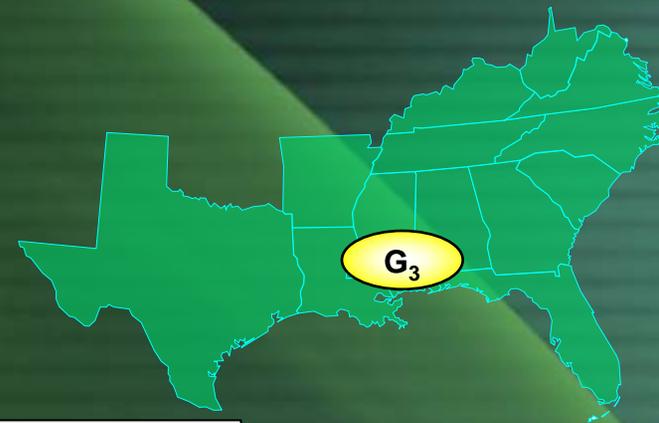
NETL

SS&B

SECARB
Coal Group

Mississippi Test Site

Field Test 3.0: Regionally Extensive Saline Reservoir



Saline Reservoir Units and Seals

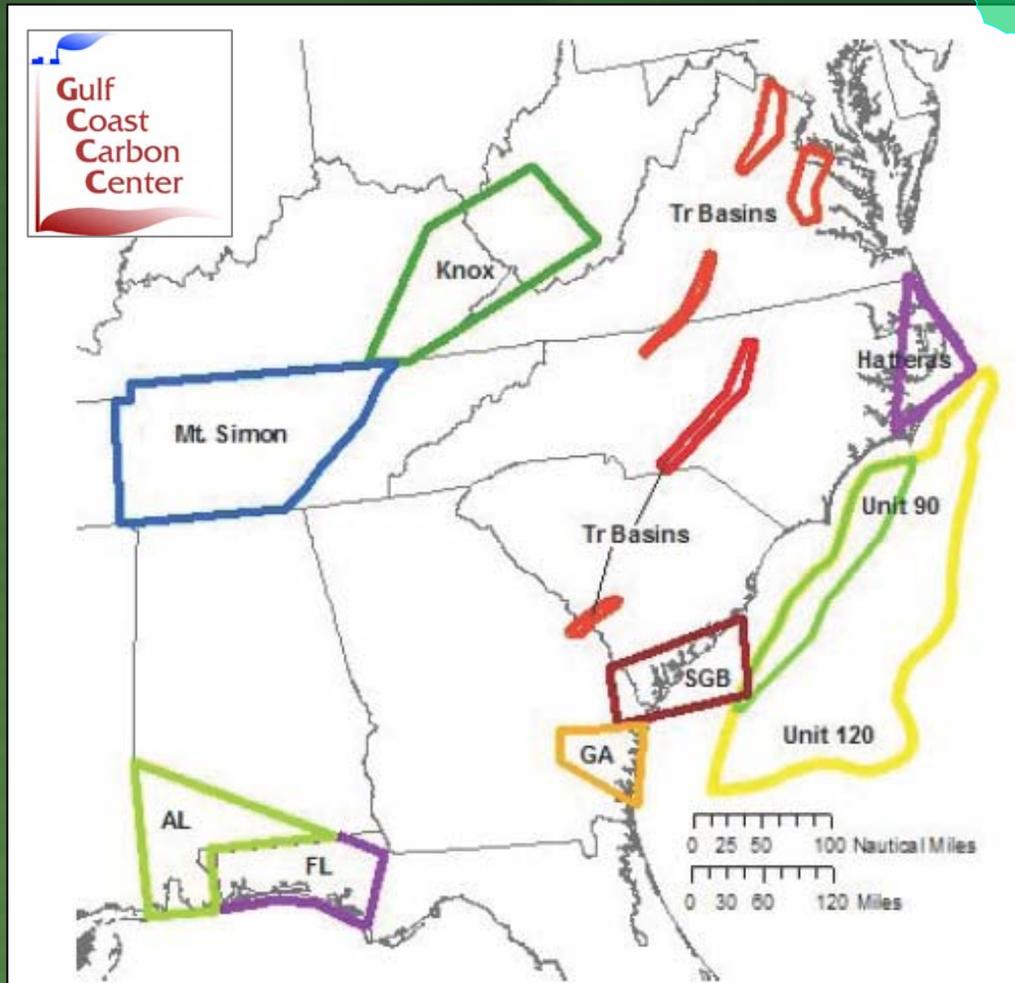
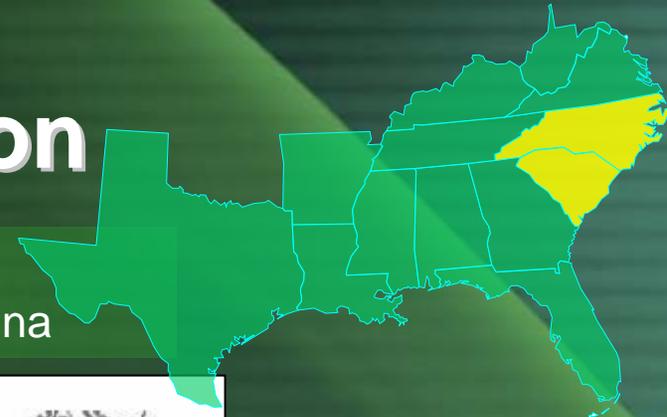
Field Test 3.0: Southeast Mississippi

System	Series	Stratigraphic Unit	SubUnits	Hydrology
Tertiary	Miocene	Misc. Miocene Units	Pascagoula Fm.	Freshwater Aquifers
			Hattiesburg Fm.	
			Catahoula Fm.	
	Oligocene	Vicksburg		Saline Reservoir
			Red Bluff Fm.	Minor confining unit
	Eocene	Jackson Claiborne Wilcox		Saline Reservoir
				Saline Reservoir
				Saline Reservoir
	Paleocene	Midway Shale		Confining unit (Seal)
	Cretaceous	Upper	Selma Chalk	Navarro Fm.
Taylor Fm.				
Eutaw			Austin Fm.	Confining unit (Seal)
			Eagle Ford Fm.	Saline Reservoir ← CO ₂
Tuscaloosa Group		Upper Tusc.	Minor Reservoir	
		Marine Tusc.	Confining unit (Seal)	
Lower		Washita Fredricksburg	Lower Tusc.	Saline Reservoir ← CO ₂
			Dantzer Fm. "Limestone Unit"	Saline Reservoir ← CO ₂



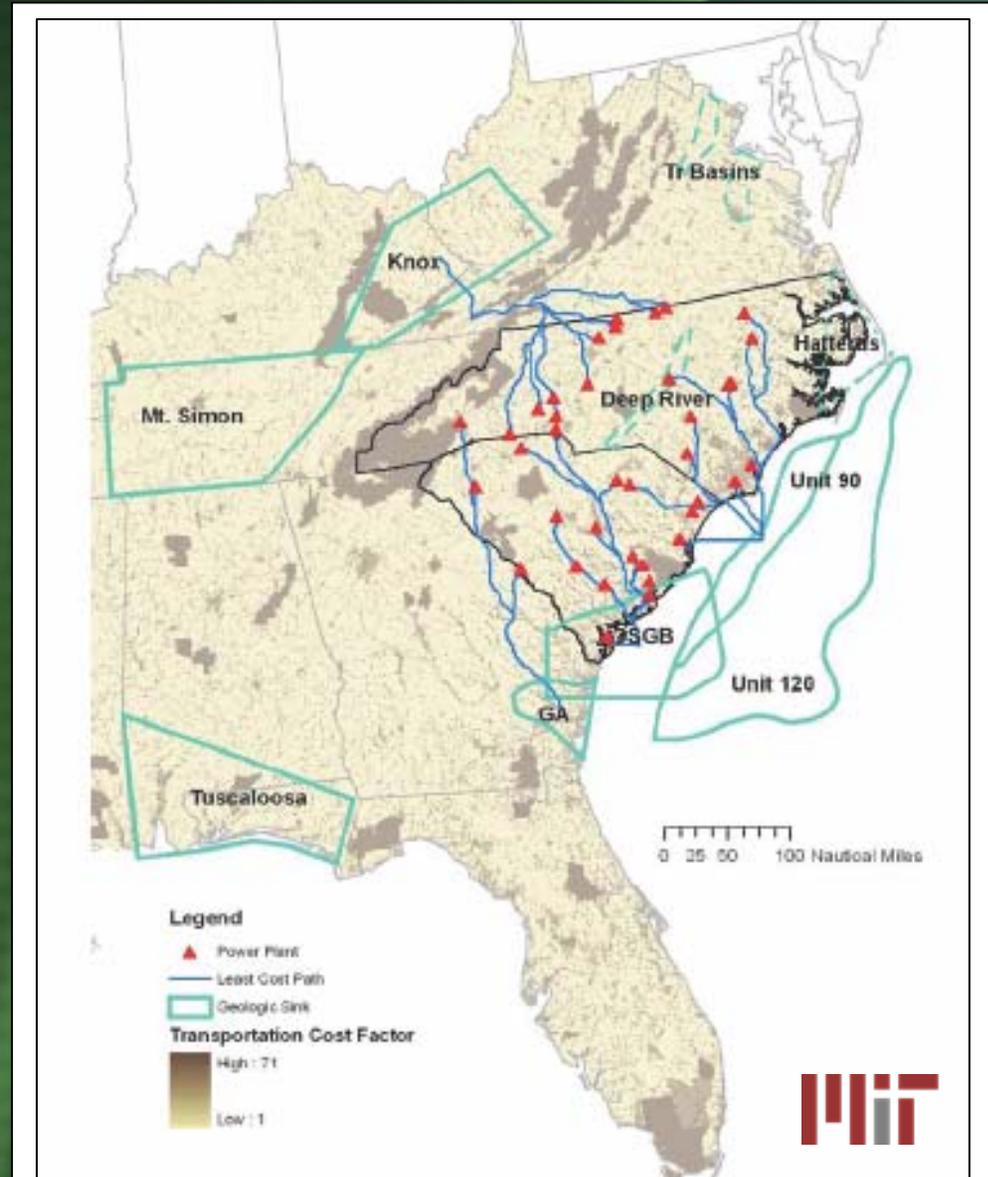
Continued Characterization

Potential Geologic Storage Areas for Emissions Generated in North and South Carolina



Continued Characterization

Scenario Considering
All Sinks but the Deep
River Basin and
Hatteras Area



Massachusetts Institute of Technology

SECARB

NETL

SS&B

SECARB Phase II Action Plans

- ✦ SSEB leads the project management and education and outreach activities for the overall SECARB program.
- ✦ Cross-cutting support for regulatory and permitting requirements and monitoring, mitigation and verification activities
- ✦ Each field test site is responsible for:
 - technical scope of work;
 - Project Definition: completed
 - Design: underway for all three sites
 - Implementation: timeline varies by project
 - Operations: drilling, injecting, monitoring
 - Closeout/Reporting
 - local education;
 - outreach and permitting;
 - MMV; and
 - maintaining the validation test's schedule and budget.



Field Tests' Status

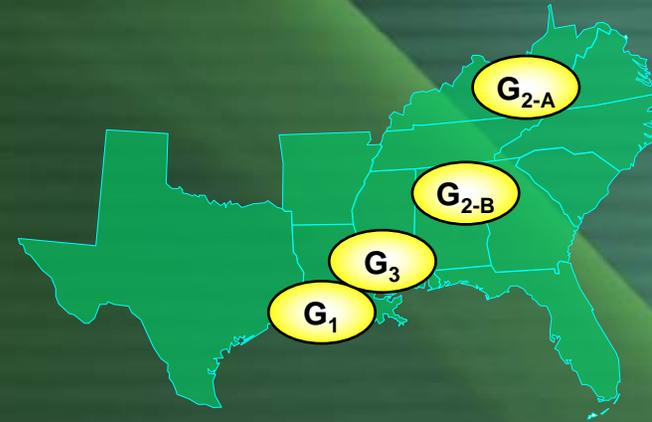
✦ Design Phase

- Underway for all three field test sites
- Cost escalations
- Equipment/Infrastructure needs

✦ Implementation

- NEPA questionnaires to DOE/NETL; must be approved before any drilling can occur at any of the sites
 - Field Test 3 (Saline Aquifer Test Center Project) – Submitted questionnaire on August 31, 2006
 - Field Test 2 (Coal Seam Project – Black Warrior Basin) – to be submitted soon

✦ Timeline for Implementation, Operations and Closeout



Southern States Energy Board **Southeast Regional Carbon Sequestration Partnership**

Presentation by:

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