Southeast Regional Carbon Sequestration Partnership

$CO_2$ Capture Activities at Plant Barry, Alabama, USA

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**SECARB Phase III Anthropogenic Test**

- 25 MW CO₂ capture unit at Alabama Power’s (Southern Company) Plant Barry.
- 12 miles CO₂ pipeline transport from Plant Barry to Citronelle.
- CO₂ injection of 100-300 thousand metric tons into deep saline Paluxy Formation over 2-3 years.
- 3 years of monitoring after injection and then close the site.
CO₂ Capture - Key Concerns

- Not commercially proven on large utility boilers; R&D and scale-up efforts ongoing
- Very high capital cost estimates (75% increase over no capture case)
- Large footprint required for equipment
- Operational concerns
  - High energy penalty for CO₂ stripping and regeneration of solvent (up to 30%)
  - Solvent degradation (from SO₂, NO₂)
  - Reliability (corrosion and foaming)
MHI advanced amine capture unit

- 25 MW post combustion slip stream
- Fabricate off-site and barge to Plant Barry
- Compress CO\textsubscript{2} to 1500 psi
- Scheduled start up during summer, 2011
- **Actual start up June 2011**
Simplified CO₂ Scrubbing Process (Amine)

Pre-treated flue gas (low SO₂, NO₂, PM)

Key Points: needs >99% SO₂ removal; consumes process steam
Groundbreaking Ceremony: Capture Unit

Alabama Power’s Plant Barry, April 14, 2010, Bucks, Alabama
Modular Transportation Photos (9-23-10)
Site Progress Photos (10-8-10)
CO₂ Capture Facility – Process Island
Integrated CCS Demo – Current Status

- **Capture Plant**
  - Groundbreaking Ceremony; April 2010
  - Gas In: June 2011
  - Compressed Gas: July 2011

- **Transportation**
  - Start Pipeline Construction: August 2011

- **Injection/Storage/MVA**
  - Drill Characterization/Observation Well: January 2011
  - Site-Specific Geologic Characterization: Ongoing
  - Environmental Assessment Completed; Finding of No Significant Impact
  - UIC Class V Injection Well Permit Pending
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QUESTIONS?

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